THE

AMERICAN REVIEW OF TUBERCULOSIS

ABSTRACTS OF TUBERCULOSIS

VOLUME V JANUARY, 1922 ABST. No. 9

Abstracts of Tuberculosis *will be published at intervals as an integral part of the American Review of Tuberculosis. It will receive separate paging and may, if desired, be bound separately at the completion of the volume.*

The Abstract Editor is Dr. George Mannheimer, 41 West 51st Street, New York City. Prompt transmission to him of reprints or abstracts of papers on tuberculosis, sanatorium or board of health reports, etc., will promote their early publication in this section.

Abstracts should be sent typewritten on one side of the page only. They should be as concise and compact as the subject matter of the article warrants. They should be headed with a short title, and followed by the full title of the paper, author's name, journal, date, volume and page.

Classification of Râles.—Examination of most of the textbooks in use in the leading American universities reveals an astounding divergence in the nomenclature of râles. Guthrie advocates simplification. He divides them into (1) crepitant or vesicular, (2) mucous or tube, and (3) cavernous râles. Subcrepitant, sonorous and sibilant types can be classified as subdivisions of the mucous râles.—*Classification of Râles: A Plea for Simplification, J. B. Guthrie, Am. J. Med. Sci., September, 1921, clxii, 372.*

Diagnosis of Tuberculosis in Childhood.—Tuberculosis is not a universal disease in childhood in this country, at least. The universal findings in Europe do not hold in America. The diagnosis of tuberculous infection rests largely upon the skin reaction which is of value at any age. The value of the reaction is commonly lost by careless methods. The activity of tuberculosis must be judged by the temperature curve and by other signs of toxemia, such as malnutrition, anemia, etc. The site of the lesion is often difficult to find. The bronchial nodes are most commonly infected, but give few signs. The best sign of tuberculous bronchial lymph nodes (or of any other inflammatory condition in this region, such as that due to whooping cough or influenza) is D'Espine's sign. From an analysis of 550 cases with reference to this sign, the author concludes that its presence below the third, and especially below the fourth dorsal vertebra, is very suggestive of tuberculosis.—*The Diagnosis of Tuberculosis in Childhood, C. H. Smith, abstracted in Arch. of Ped., July, 1921, xxxviii, 441 (Paper read before the American Pediatric Society at the meeting of June 2–4, 1921).*

Provoked Inequality of the Pupil in the Diagnosis of Early Tuberculosis.—Professor Sergent, who has long made a study of the precocious diagnosis of pulmonary tuberculosis, last April announced the discovery of a possible new sign (*Journal de médecine et de chirurgie pratiques*, June 10, cviii, 11). He terms this "provoked mydriasis." Before that period he had traced a connection between pupillary inequality and the presence of a dry apex pleurisy in which the sympathetic nerve was the transmitting agency. Apparently filaments of these nerves are involved in certain enlargements of regional lymph nodes. In certain cases subsequent miosis was explained by destruction of the said fibres. As a spontaneous phenomenon not much could be expected of it in diagnosis and therefore Sergent tested suspicious cases with mydriatics in both eyes. The latent period is counted as 10 minutes and dilatation reaches its maximum in 25. Upon the theory that the aforesaid lesions will sensibilize the sympa-

thetic on the diseased side the author expected a precocious reaction. Ten normal subjects tested were found to present bilateral symmetry in mydriasis. Of 18 subjects known to have unilateral apical trouble 11 showed inequality. In another series of 22 suspicious cases 15 gave a positive result. In addition to the frankly negative results there were a number more or less anomalous and it would seem that the stage of the lesion and resulting cicatricial changes play a rôle.—*Editorial Note, Med. Rec., October 1, 1921, c, 597.*

Percutaneous Reaction with Highly Concentrated Tuberculin.—Three groups of patients were studied: (1) 52 clinically active tuberculous cases, (2) 9 children living with open cases, and (3) 13 nontuberculous children who entered the clinic for other conditions. Tuberculin concentrated to constant weight, and ordinary O. T. were used. For the Moro test the midsternal region was used. The Pirquet and puncture reactions were done on the lower arm. Of 69 tuberculin positive cases, 58 (84 per cent) gave a primary positive Moro reaction with concentrated tuberculin, while only 36 (51.1 per cent) reacted to ordinary tuberculin. A comparison of both tuberculins in 36 positive Moro cases revealed a more marked reaction with the concentrate in 29 of these. In comparing the concentrate Moro with the Pirquet test with ordinary tuberculin in 55 tuberculin positive cases, 45 were positive to the former and only 42 to the latter. A comparison of the Pirquet test with ordinary tuberculin and the concentrate showed the latter to be only slightly superior (1.8 per cent). The puncture reaction proved inferior (39 of 45 cases positive) to the Moro test with concentrate. The Moro test with concentrate has the advantage of being performed painlessly which makes its use especially desirable in children.—*Über die perkutane Reaktion mit äusserst eingeengtem Tuberkulin, F. Stradner, Beitr. z. Klin. d. Tuberk., November 25, 1920, xlv, 31.*

Lymph Node Reactions to Tuberculin.—After tuberculin injections in the forearm examinations were made of the cubital, axillary, supraclavicular and infraclavicular lymph nodes, besides noting the other reactions usually obtained to tuberculin of 34 nontuberculous cases, injected with 1 mgm. O.T. Only 6 revealed an increase in size of the regional nodes. These included cases of emphysema, enteritis, furunculosis, tenia, rheumatism and scabies. A node reaction was obtained in 10 of 15 closed cases of apical tuberculosis. Of 14 cases given therapeutic inoculations of O.T., 13 gave the node reaction; of 20 cases given albumose-free tuberculin, 6 were negative; of 27 cases given old albumose-free tuberculin only 5 were negative, and of 10 cases given bacillus emulsion all gave strong positive reactions. Clinically negative tuberculous cases gave the lymph node reaction in 18 per cent of those tested, and tuberculous suspects 66 per cent. The node reaction seems to be correlated to the skin reaction, being, however, less sensitive. This reaction seems to have the advantage, however, of determining the presence of an active tuberculosis, while the other reactions merely indicate a previous infection.—*Drüsenreaktion bei Tuberulinimpfung, K. Glaessner, Beitr. z. klin. d. Tuberk., November 25, 1920, xlv, 8.*

Diagnostic Value of Pirquet Test.—The 5044 tested cases were Petruschky's patients in Danzig and West Prussia. The test was made to determine whether tuberculosis was or could be instrumental in producing the manifestations observed in those in whom diagnosis was doubtful. Petruschky's modification of the Pirquet test was used: the left upper arm is cleaned with ether or alcohol and two scratch crosses made not deep enough to draw blood, tuberculin being applied to the upper cross and the lower being used as the control. To the first test 864 reacted negatively, and 444 of these were tested a second time, when 27 per cent reacted positively. With increasing age (in which the tuberculosis incidence is also known to be higher) a greater percentage of positives was found on second test (up to 5 years, 11 per cent; 6 to 14 years, 16 per cent; 14 to 20 years, 29 per cent; 20 to 30 years, 48 per cent; 30 to 40 years, 46 per cent; and over 40 years, 54 per cent). This result is attributed to the more active processes which occur in children and youths, and the encapsulated and calcified nodules, containing relatively fewer bacilli and less capable of releasing specific substances, of those more advanced in age. To the first test 113 reacted questionably, while 82 per cent of these became definitely positive to the second test; the percentage of positives again being greater with increasing age (43 per cent up to 6 years, and 100 per cent over 40 years). A summary of all the cases (5044) revealed 87.6 per cent of positive reactions (up to 6 years, 57 per cent; 6 to 14 years, 78 per cent; 14 to 20 years, 88.6 per cent; 20 to 30 years, 94.8 per cent; 30 to 40 years, 96.8 per cent, and over 40 years, 96.3 per cent). In 965 cases there was no clinical tuberculosis, and of these 72.2 per cent reacted

positively (up to 6 years, 52.5 per cent; 6 to 14 years, 60.9 per cent; 14 to 20 years, 68 per cent; 20 to 30 years, 82 per cent; 30 to 40 years, 88.6 per cent; and over 40 years, 84.6 per cent). Of 105 cases of open tuberculosis only 2 were negative, one of these reacting positively on the second test while the other was not tested a second time. Of 1965 closed cases 98.5 per cent were positive. Of 1921 glandular cases and suspects up to 6 years, 56.3 per cent were positive; 6 to 14 years, 80.3 per cent; 14 to 20 years, 86.1 per cent; 20 to 30 years, 92.2 per cent; 30 to 40 years, 93.0 per cent; and over 40 years, 95.5 per cent. Petruschky's spinalgia (*Spinalgie*) was the only symptom of tuberculosis in 4.7 per cent of the cases between 6 and 14; in 19 per cent at 14 to 20 years; 15 per cent at 20 to 30 years, 11 per cent at 30 to 40 years, and 7 per cent in those over 40 years. Comparing the findings in patients without clinical tuberculosis, with spinalgia and with pulmonary tuberculosis it is concluded that spinalgia is an indication of tuberculosis, although not an entirely dependable one. A like comparison of the glandular cases leads to the conclusion that lymph node enlargements in young children are occasioned rather by nontuberculous conditions, while in older children and youths they are mostly, though not always, due to tuberculosis. Every positive tuberculin reaction indicates the presence of tuberculous nodules with living tubercle bacilli.—*Über die diagnostische Bedeutung der von Pirquetschen Kutanprobe an der Hand einer grösseren Statistik, R. Peters, Beitr. z. Klin. d. Tuberk., March 15, 1921, xlvii, 130.*

Blood Lipases in Tuberculosis.—In order to determine whether the fat-splitting ferments of the blood, obtained from various forms of tuberculosis, showed quantitative variations, the tributyrin method of Rona and Michaelis was used. Fibrous forms of tuberculosis gave high, and caseous and exudative types low lipase values. Examinations at intervals, on the same persons, revealed an increased lipase titre when there was an increase in weight and a diminution in the fever, and vice versa. The lipase titre seems to follow the clinical course of the disease, and decreases when there is an accumulation of tuberculous pus in the body (spondylitis, peritonitis and caries). Tuberculin injections influence the titre only in so far as they have a clinical effect. Deep roentgen ray treatment seems to have a profound effect on the lipase titre of the blood. Shortly before death the titre drops to a low value. The lipolytic power of postmortem blood is probably not identical with that occasioned by lipase. Cases of pseudochylous serums revealed no diminished lipase, while disturbances of the endocrine glands produced significant changes. No relation was found between the lipase titre and the lymphocyte count. In tuberculous guinea pigs the titre progressively diminished.—*Die sogenannten Blutlipasen bei Tuberkulose, II Mitteilung, A. Frisch and V. Kollert, Beitr. z. Klin. d. Tuberk., March 15, 1921, xlvii, 146.*

Diagnostic Value of the Wildbolz Auto-Urine Reaction.—Theoretical considerations and a concise review of the literature are followed by a report of the results on 220 cases in which this method was employed, together with control intracutaneous tuberculin tests. The technique consists in evaporating *in vacuo*, at a temperature of 60 to 70°C., 150 cc. of a morning urine specimen. This concentrated urine is placed in the icebox over night and on the following morning it is filtered through sterile paper. Injections are made into the skin of the outer surface of the upper arm, in sufficient amount to produce a bleb 5 mm. in diameter. A positive reaction consists of erythema and infiltration of the skin persisting for at least forty-eight hours. If necrosis of the skin occurs it may be due to trauma or it may be caused by excessive salt concentration (phosphates) in the urine. In this case it is possible to obviate the difficulty by treating the concentrated urine with 20 volumes of 90 per cent alcohol in which the antigens are soluble. The salts are removed by filtration and the filtrate is again concentrated *in vacuo* to the original urine volume. A positive tuberculin test merely indicates tuberculous infection; a positive auto-urine reaction indicates activity of this infection. If the tuberculous patient be in a state of anergy he will not react to an intracutaneous inoculation of his own urine, but if his urine be inoculated into another tuberculous individual who is in an allergic condition a reaction is readily obtained. The test is of great value in differential diagnosis, and 20 surgical cases, all with positive tuberculin reactions, some with positive Wildbolz reactions, are cited. Subsequent operation in every case established the absolute reliability of the auto-urine reaction. In 220 cases, chiefly of tuberculosis in different locations, on which the unmodified Wildbolz procedure of auto-urine inoculation was tried, the claims of the originator of the test was substantiated. For confirmation of the diagnosis, one should always employ an intracutaneous tuberculin test on the same arm. In the case of an anergic patient his urine must be injected

into an allergic individual. In case the urine, because of its high salt concentration provokes necrosis at the site of inoculation, the salt may be removed by alcohol without injuring the antigen in the urine. Strongly positive reactions are often found early in the disease; chronic cases and those with extensive destructive processes often present weak skin reactions. The antigen content of the urine does not correspond with the extent and activity of the process. The reaction, as an aid in prognosis, is significant only in so far as the tuberculous process may be active or healed.—*Die diagnostische Verwertbarkeit der Wildbolzschen Eigenharnreaktion, E. Bosch, Münch. med. Wchnschr., June 17, 1921, lxviii, 733.*

The Alizarin Test in Infantile Tuberculosis.—Forty cases were tested by Roncal's method, using a 1 per cent alcoholic solution of alizarin (oxy-anthraquinone). A strongly positive test was characterized by the production of a dusky red color with the formation of a purple precipitate. The color is typical and lasts for some days. Nontuberculous sputum is colored purple red and does not give a precipitate. In twenty normal children the reaction was negative; in forty children suffering from various diseases, the reaction was positive in four with pulmonary tuberculosis, six with peritonitis, two with meningitis, one with adenopathy, one with scrofula, one with erythema nodosum, one with pleural effusion (all of tuberculous origin). The test was applied to the spinal fluid in the two cases of tuberculous meningitis, and was positive. The test as applied to spinal fluid will be made the subject of further research.—*La prova dell' alizarina per la diagnosi della tubercolosi nella infanzia, G. Genoese, La Pediatria, March 1, 1921,* ***xxix, 227.***

Agglutination Reaction in Tuberculous Infection of Children.—Of 235 tuberculous children, 95 per cent gave a positive agglutination reaction with the avian variety of tubercle bacilli. In 5 the titre was 1:200. In the majority, agglutination occurred at 1:25 to 1:200. The reaction was negative in the earliest cases and in cases which had advanced to the state of tuberculous cachexia. There is no definite relation between the amount of tuberculin injected, the agglutination content of the blood, and the condition of the patient. The titre sometimes grew higher as the child improved, and lower as the process became more advanced. The special localization of the tuberculous process apparently had no effect on the reaction.—*Sulla siero-agglutinazione nell' infezione tubercolare dei bambini, R. Kharina-Marinucci, La Pediatria, June 15, 1921, xxix, 529.*

Serum Agglutination of Tubercle Bacillus.—In the adult with a developing tuberculosis a negative agglutinin reaction is a very ominous sign. If there were previous evidences of tuberculosis, but no present symptoms exist, a negative agglutinin reaction indicates complete recovery. A much feebler positive reaction has value in the child than in the adult. In old persons a positive reaction is very frequent because of the great number of present, recent or latent tuberculoses. Consequently, in these a positive reaction indicates lesions recently cured or still active, but a negative reaction indicates the absence of previous tuberculosis or one completely cured. Therefore, in these cases the reaction is useful for making a diagnosis of tuberculosis in evolution, or a latent or a past lesion, which would otherwise be very difficult to detect. One of the important uses of the agglutinin reaction is to determine the moment when an active tuberculous lesion is completely cured, and it is among the best means by which this can be done. The agglutination work in process before the war should be resumed, and, particularly, observations should be made on the same subjects of agglutination, fixation, and cutaneous reactions.—*La séroagglutination du bacilli de Koch, Paul Courmont (Lyons), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 123.*

Diagnostic Methods of Bacillary Infection.—Percussion, auscultation, roentgenology, bacteriology and immunization experiments show different aspects of the state of the lungs, and all should be employed. Auscultation is more valuable than percussion or X-ray examination, but the latter reveal conditions which auscultation does not discover. Immunization experiments and the observation of evening temperatures are equally adapted to confirm a diagnosis of active tuberculosis. In the stations of the Czecho-Slovak Republic an examination is not considered complete unless the subject has been examined by all these methods.—*Méthodes de diagnostic de la contagion bacillaire, L. Syllaba (Czecho-Slovakia), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, 1921, p. 120.*

Properties of Tubercle Bacilli Attenuated by Bile.—Previous work had shown that bovine tubercle bacilli, after prolonged serial cultivation on potato treated with a medium of five parts of bile to one hundred parts of glycerin, gradually lost their tuberculogenic power and underwent a transformation which allowed their use for the immunization of calves against virulent natural or artificial infection by tuberculosis. Furthermore, this increased resistance is maintained as long as the treated animals preserve the living attenuated bacilli in their lymphatic system, but ceases when the bacilli have been eliminated through the natural paths of excretion. The present contribution had as its object the observation of the effects of this bile-treated bacillus upon other animals than cattle which were susceptible to tuberculosis. The work was done with cultures taken from the two hundredth to the two hundred and thirty-fifth passage on the bile medium, cultures which were transplanted every two weeks and incubated at 38°C. These bile-treated bacilli have been so modified, that, if replanted upon ordinary potato-glycerin-broth, they assume the normal appearance of tubercle bacilli, but never regain virulence and remain incapable of producing tubercles. A single subcutaneous inoculation, of 0.5 to 1 mgm., produces neither abscess nor lymph node reaction in guinea pigs: there is only a slight local tumefaction which disappears within two or three weeks without leaving a trace. After similar inoculations of from 5 to 10 mgm. there ensues a very rapid edema, followed by a small abscess, which ulcerates on the tenth to the twelfth day, forming a true chancre which suppurates for from two to four weeks and then heals. Meanwhile, the corresponding lymph node undergoes a slight and transitory enlargement. The infection never becomes generalized and the animal remains perfectly well. Intraperitoneal inoculations of guinea pigs are equally well borne. Intravascular inoculations, performed by cardiopuncture, are perfectly well tolerated even though dosage is large. On about the fifth day following this, there appears a sudden tumefaction of the whole lymphatic system which persists about twelve days and then subsides. If animals are killed at this time they show no visceral alteration. Not a single tuberculous lesion will follow the intravascular inoculation of adult guinea pigs with as much as 100 mgm. of the bacilli. Doses of 50 to 100 mgm., introduced into the stomach through a sound and by way of the esophagus, set up a transient enlargement of the whole lymphatic system, particularly of the mesenteric nodes; but the animals remain perfectly well. Subcutaneous inoculations of rabbits are equally well borne, but the susceptibility of these animals to intravenous inoculation is much greater, for 20 mgm. frequently provokes hepatized foci of pneumonia which are crowded with bacilli and to which the animals succumb after two or three weeks. Dogs and monkeys tolerate the bacilli well. Bacilli of the forty-second subculture were still virulent, that is, tuberculogenic, for horses. Those of the two hundred and thirteenth subculture, of which 10 mgm. were given to a horse intravenously, set up a fever which lasted ten days but caused no functional trouble. The horse which received repeated large injections was killed two months after the last inoculation, when bacilli but no tubercles were found in all the viscera and lymph nodes. The horse is more susceptible to the bacilli than small laboratory animals. Massive intravenous infections provoke a febrile, typhoidal disease, which is, however, benign and unaccompanied by nodules. Repeated inoculations of the bacilli in guinea pigs, rabbits and horses disclose that the animals are made allergic by the first inoculations. Healthy animals inoculated with the bile-treated bacilli become sensitive to tuberculin. At the same time, tuberculous animals react with fever to inoculations of the bile-treated bacilli. It would appear that a single intracardiac inoculation of bile-treated bacilli confers upon guinea pigs a certain degree of increased resistance to virulent infection. On the other hand, small subcutaneous or intraperitoneal inoculations do not seem to protect against virulent infection. Experiments have not been continued long enough to determine whether the increased resistance obtained by intracardiac inoculation is durable.—*Contribution a l'étude du bacille tuberculeux bilié, A. Calmette, A. Boquet and L. Negre, Ann. d. l'Inst. Pasteur, September, 1921, xxxv, 561.*

The Avian Tubercle Bacillus.—*Certain* avian tubercle bacilli possess well-defined characters by nature which make them perfectly autonomous and do not permit of their being assimilated with the bacillus described by Koch for man and for cattle. These characters are absence of unifying substances, constancy of reaction of culture media, longevity upon artificial media opposed to feebleness of virulence, moderate ability to cause local caseation, intense toxicity for the horse, feebleness of local and general effects of tuberculin obtained from the bacilli upon tuberculous animals, and absence of specific immunizing power against human and bovine bacilli. Two of these

properties in particular separate these strains from those of mammalian bacilli: these are the necrotic and immunity reactions. Avian tuberculosis arises from several causes, in which figure (1) *very exceptionally* mammalian tubercle bacilli and (2) *very frequently* acid-fast bacilli which are occasionally endowed with a certain tuberculogenic power. So far as the last named property is concerned, it occurs as irregularly and imperfectly in the second group of microörganisms as it is constant and complete in the first group and will not justify the identification of the two groups. The two types of bacilli are sometimes distinguishable absolutely by their immunity reactions.—*Recherches sur le bacille de la tuberculose aviaire, A. Jousset, Ann. d. l'Inst. Pasteur, September, 1921, xxxv, 603.*

Isolation of Tubercle Bacilli from Sputum by Petroff's Method.—Success with Petroff's method is reported. Contaminations were rarely encountered, the one which did most frequently occur being a protein-liquefying, brick-red coccus. On the average two tubes out of five gave positive cultures, growth occurring in twelve to fourteen days, when the bacilli were very numerous. The necessity of complete removal of mucus by alkali is emphasized.—*L'isolement des bacilles de Koch a partir des crachats tuberculeux d'après la méthode de Pétrof, H. Limousin, Ann. d. l'Inst. Pasteur, August, 1921, xxxv, 558.*

Tuberculosis Immune Milk.—The general subject of the transfer of immunity to various infectious and toxic substances by milk, and from mother to offspring, is reviewed and tabulated, leading to a survey of the same fields in tuberculosis. Some of the aspects of this subject studied by Maragliano and his pupils are repeated with slight experimental modifications. For immunizing, the preparations of Maragliano, *Polpa bacillare* and *Liquido F* and Deycke and Much's *MTbR*, while for antigen test reagents in complement fixation test the *antigene* and *anticorpo* of Maragliano and the partial antigens A, Fl and N were used. The milk serum and blood serum of the parent, and the blood serum of the offspring were tested for evidences of humoral immune substances, and both parent and offspring were also studied by intracutaneous injections for hypersensitiveness to the above antigens. In some human cases the umbilical cord, placenta and amniotic fluid were also examined. The studies carried out on cows and human beings indicate the transfer of antibodies and antigens from parent to foetus by the placental circulation in man, although the question still remains an open one in cattle. Antigens and antibodies are definitely transferred to the milk in large amounts in actively immunized women and cows. This transfer is not one in which the mammary glands play a passive rôle; but there results an active formation of antibodies (partial antibodies) by the receptor apparatus of the glands. The evidence seems to indicate that the calf obtains, in homologous nursing, antigens and antibodies, so that both active and passive immunization occurs, as is indicated by the presence of partial antibodies in the serum and the presence of a positive intracutaneous test during the first month after birth. The absence of a positive intracutaneous reaction in nursing infants is viewed rather as being due to a lack of proper testing methods at this age to determine hypersensitiveness. It remains to determine by further experiments on cows and man how long the immunity conferred by the placental circulation and by the milk is retained and how massive an infection this method will protect against. It is believed that the method is serviceable clinically, to prevent or markedly diminish the danger to infants and calves from infection during the first few months of life. Immune wet nurses are recommended as a further measure.—*Tuberkulose Immunmilch, A. Strubell and Theodora Strubell, Beitr. z. Klin. d. Tuberk., November 25, 1920, xlv, 38.*

Case of Spontaneous Pneumothorax in an Infant.—The onset in this case of an infant eight months old was very acute, with signs of bronchopneumonia in the left lower lobe. Eleven days after onset, pneumothorax, with collapse of the left lung, was diagnosed. This was considered to have developed overnight. Ten days later there was a considerable collection of liquid in the left pleural cavity, the diagnosis being confirmed by puncture and by X-ray. Amphoric breathing and metallic tinkle could not be demonstrated. Five months after the onset, the patient died of a supervening dysenteric enteritis. Autopsy revealed a tuberculous process, with the formation of a large cavity in the left lower lobe, and tuberculous fibrinous pleurisy. The left upper lobe and the entire right lung were free from tuberculosis.—*Sopra un caso di pneumotorace spontaneo in un bambino di 8 mesi, E. Schoenstein., La Pediatria, June 15, 1921, xxix, 535.*

Paratuberculous Pulmonary Disease.—Paratuberculous diseases of the

lungs are massive infiltrations, mostly in the left upper lobe at the site of the involved lymph nodes, occurring in children of one to one and one-half years with a tuberculous infection but without constitutional symptoms. They are characterized by intense dulness, feeble or distant bronchial breathing, intense homogeneous X-ray shadows extending to the apex, a slight sensitiveness to tuberculin, and persistence for several months and resolution provided carnification does not develop. In contradistinction to chronic indurative pneumonia, long persisting paratuberculous infections do not cause contraction. Their origin is probably toxic. In 6 cases the disease was found on the side of the involved nodes and in 3 of these the findings were confirmed postmortem. Lymphatic stasis due to node involvement may account for this peculiar disease.—*Über paratuberkulose Lungenerkrankungen, S. Engel, Berl. klin. Wchnschr., August 1, 1921, lviii, 877.*

Pulmonary Tuberculosis in Cases of Surgical Tuberculous Lesions.—In a very large majority of cases an attentive examination will reveal the presence of pulmonary lesions in different phases of evolution in cases of surgical tuberculosis, and statistics show that the lung process precedes the surgical lesions. But although pulmonary tuberculosis during lymph node, bone, or joint tuberculous infection is often secondary, or at least presumed to be such, it may also be the first evidence of tuberculous infection, although it is impossible to determine the initial lesion in many instances. Between these two extremes should be placed those cases in which the lung was the first organ involved, and probably such are much more common than has generally been suspected. Therefore, the question should be studied under three heads, namely, (1) pulmonary infection in cases where the lesions have remained local for a long time; (2) bone, joint, and lymph node infection in cases of pulmonary phthisis, and (3) the part played, probably important, by latent pulmonary or lymph node infections giving rise to blood infection, in the genesis of surgical tuberculosis, the etiology of which is so frequently obscure. It is generally stated in textbooks that before making a prognosis of local tuberculous lesions the patient's general health and the presence of complications in other viscera, especially the lungs, should be first considered. Phthisis darkens the prognosis of white swellings, for according to Billroth, 16 per cent of the subjects treated for this affection in his day died of pulmonary tuberculosis, while Koenig's later statistics are about the same. From the clinical viewpoint, two conditions are to be considered. The first embraces those cases in which a surgical tuberculous lesion follows a regular or even favorable evolution. Locally everything appears to be doing well, but a pulmonary lesion exists which kills the patient. In the second case the surgical lesion has caused much deformity, numerous sinuses, and marked enlargement of the lymph nodes, and tuberculous metastases occur in the lungs from the joint or bone lesion. Although tuberculous adenitis remains for a long time a local lesion the researches of Boulay and Heckel have shown that pulmonary tuberculosis often follows. Bone or joint tuberculosis seems to provoke pulmonary infection secondarily, while adenitis, especially in the neck, seems to be the normal course followed by the infection in reaching the lungs by lymphatic contiguity. According to Marfan, Boulay, and Heckel, the infection in the lymph nodes of the neck follows the cervicomediastinal lymphatic route and the lymph nodes of the mediastinum are most frequently involved when an infection of the cervical glands exists; at least, this is what occurs in children and to some extent in adults. When, for example, the case is a joint tuberculosis, an enlargement of the regional lymph nodes indicates that the bacilli have started on a general invasion of the body; they may reach the thoracic duct, and then the pulmonary circulation becomes arrested in the fine pulmonary capillaries. This mechanism is the same as that described by Calmette in the intestinal origin of tuberculosis of the lungs, and recent experimental work has shown the importance of the lymphatic system in the generalization of local tuberculous lesions. When the tuberculous lesions of lymph nodes, bone, or joints are manifestly consecutive to pulmonary tuberculosis, the clinical picture changes. In these circumstances there is generalization of the infection; the bacilli invade the organism and create visceral lesions—bones and joints included, the development of which is the result of frequent obscure factors. Trauma, however, seems to play an important part. Between primary and secondary osteoarticular manifestations there are often very marked clinical differences in respect to the aspect and evolution of the lesions. While in the former the lesions are circumscribed and slow in progress, in the latter the invasion is rapid. The invasion of the blood by leucocytes gorged with bacilli takes place either by the direct passage of the leucocytes through the pulmonary capillaries or from the presence of a tuberculous endarteritis of the pulmonary vessels. The

great number of autopsies showing that pulmonary tuberculosis exists without giving rise to clinical manifestations is now a well known fact; a minute pulmonary lesion, susceptible of cicatrization may give rise to blood infection by one of the mechanisms referred to. Therefore, the pulmonary lesions are often less evident than the osteo-articular processes and are apt to be overlooked. But there are cases in which the inverse is true, namely, that the lungs become secondarily infected from a tuberculous process in the bones or joints.—*Editorial, Med. Rec., October 1, 1921, c, 594.*

Surgical Tuberculosis.—After reviewing the various actions of specific methods of therapy, 220 cases of surgical tuberculosis, 56 of them ambulant, are reported on. The observation period on these cases covered in maximum of two and one-half years and a mean of about three-fourths to one and one-half years. Nearly all cases were X-rayed before and after treatment; and weight, urine and blood picture were studied. Detailed reports are not given, but the results are summarized. The metabolism of 8 cases treated with sunlight was improved, but no striking effects were seen. Roentgen ray treatment in 54 cases revealed a good reaction in 49.5 per cent; of these, 17 were moderate cases of bone tuberculosis of the extremities, 10 of scrofulous glands of the neck, 7 spondylitis with fistulae, 6 imperforated abscesses, 6 spina ventosa. 3 rib caries, 3 skin tuberculosis, and 3 parotid fistulae. The best results were obtained in rib caries and on neck lymph nodes. Absolute healing occurred in only 10 cases (19 per cent). The remainder, after six months of the above treatment, were given specific treatment, which yielded variable results. The use of O.T., according to Pondorff, gave relatively the best results. To stimulate metabolism, organic fatty acids (especially palmitic) were injected: 61 cases (ranging from two to sixty-two years) were treated according to Pondorff's method and with palmitic acid. Of these, 19 were definitely improved roentgenologically, 17 were healed and 22 were influenced clinically although not roentgenologically. New Tuberculin Koch, Iod-Tuberkulin, Arsen-tuberkulin, partigens and Tuberkulin Rosenbach gave no appreciably conclusive results. Treatment with cold-blooded tubercle bacilli in 8 cases yielded no results. The formulation of a definite scheme for treating tuberculosis seems to be impossible, on account of the marked variability of each individual case occasioned by the disease. A good pharmacological knowledge is essential to treatment, that is, a negative phase occurs for three to four days following specific treatment, after which tuberculin hypersensitiveness increases from the fourth to seventh day. In the progressive cases the more powerful specifics are not desirable. Improvement in metabolism and leucocytosis may be attained with "Aolan" or organic acids, which are advantageous remedies in reinforcing specific treatment. Operative measures should be used only rarely. Conservative treatment with rest, increasing bodily resistance with suitable nutrients, stimulation of metabolism with sunlight and baths, and the therapeutic use of the roentgen ray and fresh air are the foremost therapeutic measures to be advocated in surgical tuberculosis.—*Über chirurgische Tuberkulose, E. O. Schmidt, Beitr. z. Klin. d. Tuberk., March 15, 1921, xlvii, 106.*

Nontuberculous Anorectal Fistula Resembling the Tuberculous Variety.—Nontuberculous fistula may exist in a person who presents general constitutional symptoms which resemble those of tuberculosis, and thus obscure the diagnosis of the anorectal condition, especially if the patient's system has been undermined by the absorption of materials incident to chronic suppuration or if the patient happens to be subject to frequently recurring colds, persistent cough, etc. The following two cases of nontuberculous, foreign body anorectal fistula are reported: The first patient was admitted to the hospital with a history of a pericoccygeal abscess, for which he had undergone operation three months before and the operative wound had been treated by cleansing and by gauze drainage. The wound failed to close and presented a chronic, thin, dirty gray discharge from an opening 1 cm. below the tip of the coccyx, tenderness about the rectum and lower end of the spine, and pain which prevented the patient from following his occupation. The patient was constipated, had a hacking cough, felt weak, and steadily lost weight. He had a chronic bronchitis without alveolar involvement. Local physical examination revealed a condition which led to diagnosis of tuberculous anorectal fistula. At operation there was found a thickened globular mass between the posterior wall of the rectum, coccyx and lower sacrum which proved to be a piece of gauze such as is used for drainage. The second patient complained of pain and tenderness of the inner side of the left buttock and an annoying discharge from the wound beside the anus. His complaint had begun eight or ten months before with a swelling in that region which

subsided for a short time after operation and then recurred. His digestion was poor. He had persistent cough and expectoration and he was steadily losing weight. The skin at the left side of the anus was livid and indurated, raised into folds and perforated by a number of irregular openings from which granulation tissue protruded, and a few drops of seropurulent material could be squeezed out. Probing revealed undermining of the ischiorectal fossa for a distance of about 5 cm. without perforation of the rectum. Because of the unusual character of the local lesion and the suspicious general symptoms, the diagnosis was probable tuberculous anorectal fistula. At operation a globular mass the size of a large hazel nut was found which contained a ball of hair and a thick, jellylike material, and proved to be a dermoid cyst in an unusual location.—*Simple Anorectal Fistula Simulating the Tuberculous Variety; a Report of Two Cases Presenting Unusual Features, A. A. Landsman, New York M. J., October 19, 1921, cxiv, 468.*

Tuberculous Meningitis and Hereditary Syphilis.—During the past few years the authors have seen more than twenty cases of tuberculous meningitis in children with hereditary syphilis. As a rule syphilis imparts to tuberculous lesions a definite tendency to sclerosis. Fibroid phthisis is especially prone to develop in syphilitics. When bronchiectasis, fibrinous pleurisy, mediastinitis, or adenopathy occur in young subjects, a Wassermann test should be made. Whether the formation of scar tissue, so characteristic of syphilitic infection, is an important factor in supervening tuberculous meningitis, is a subject to which too little attention has been paid. Hereditary syphilis is now claimed to be an important cause of meningeal dysfunction. This, it is proper to assume, favors the implantation of tubercle bacilli as well as other germs. It was not until the authors began doing Wassermann tests on all cases of tuberculous meningitis that they began to realize the frequency of this condition in hereditary syphilis. Many cases of the latter were discovered by blood Wassermann tests alone. If the course of tuberculous meningitis is modified in hereditary syphilis, such modification is not characteristic, though the course may occasionally be so altered as to make the diagnosis doubtful for some time. In cases where both diseases are found to be present, one must be careful not to call tuberculous meningitis a "simple meningeal reaction in syphilis," and vice versa. When, in a case with a positive Wassermann test, meningeal symptoms appear, a course of antiluetic treatment should be instituted and its results will be of great help in deciding the status of the case. Antiluetic treatment should be resorted to in all cases of tuberculous meningitis, in the hope of curing an unsuspected luetic process.—*Méningite tuberculeuse et syphilis héréditaire, V. Hutinel and P. Merklen, Arch. de Méd. d. Enfants, September, 1921, xxiv, 521.*

Diagnosis of Lung Tumors.—A primary lung tumor is one of the most difficult primary lesions to recognize early. This can only be done with a fair degree of certainty. When the condition cannot be recognized definitely an exploratory thoracotomy should be performed, whenever there is a reasonable suspicion of a primary tumor of the lung. If such a lesion is present it can be removed at the time when the operative risk is at a minimum and the chances for recovery are at their height. Clinically a pleural and a hilum type of primary lung tumor are recognized. The pleural type is most amenable to surgical treatment. A reasonable suspicion of the presence of the pleural type of primary tumor is based upon the occurrence of a one-sided pleural effusion, with or without bloody fluid, in the absence of definite signs of tuberculosis. The roentgenogram of the chest taken when the pleural cavity is inflated, after removal of the fluid, is one of the best methods of demonstrating the mass in the lungs. The hilum type is not so amenable to treatment, and the most important indications of its presence are the persistence of chronic bronchitis in the absence of tuberculosis, with blood tinged sputum, and the subsequent evidence of a mediastinal mass with pressure symptoms. In these cases bronchoscopic examination is of the greatest diagnostic value. Careful study of many cases of recurrent pleurisy and chronic bronchitis will reveal that primary lung tumors are much more common than has been heretofore believed.—*The Diagnosis of Primary Lung Tumors, A. S. Blumgarten, Am. Jour. Med. Sci., September, 1921, clxii, 376.*

Clinical Observations on Hodgkin's Disease.—Because of the ancient controversy with regard to the importance of tuberculosis as an etiological factor in Hodgkin's disease, an inquiry was made into the family history of the patients. One patient reported that a cousin had tuberculous lymph nodes in the neck and another patient believed that a maternal aunt had died from pulmonary tuberculosis. Roentgen ray examination revealed evidence of tuberculosis in only one patient and this

could not be confirmed clinically or microscopically. Moreover, at necropsy no evidence of tuberculosis was found in three examinations, and in only one case was it discovered during the course of the disease. The history of this patient is not included in the present study because no clinical evidence of mediastinal involvement was found. The authors do not believe that tuberculosis plays a part in producing the disease. Besides the usual treatment, which is comparable with that used in chronic tuberculosis, many patients have been treated with radium. The glands respond most satisfactorily. Treatment by the roentgen ray probably offers most in mediastinal complications, and the authors have used it in a limited number of instances with satisfaction. It results in a replacement by connective tissue and a diminution in the size of the glands. This is particularly true of glands that are still soft and have not passed into the fibrous stage. The improvement in the patient's general health and appearance is out of proportion to the effect of the treatment on the glandular masses. These facts have recently been illustrated strikingly in a patient now under treatment. Treatment should be begun even before the deeper groups of glands can be palpated and should be kept up for a long time in association with radium, which is more useful over the superficial glands.—*Clinical Observations of Hodgkin's Disease, with Special Reference to Mediastinal Involvement, W. S. Lemon and J. B. Doyle, Am. J. M. Sci., October, 1921, clxii, 516.*

Recent Methods of Treating Pulmonary Tuberculosis.—Tuberculous patients were studied during milk (Schmidt), partigen and Friedmann's vaccine treatment. There was no marked parallel between the reaction to tuberculin and to milk. The milk injections were given according to Schmidt's directions in 55 cases (25 of these were suspected of, or had inactive or active tuberculosis), starting with 0.5 cc. and increasing to 1.2 cc. (in a few cases going up to 5 cc.). The pyrexia produced by milk is not specific for tuberculosis, as all cases, including nontuberculous ones, gave a reaction. A cutaneous or intracutaneous reaction could not be produced by milk. Subcutaneous injection of 5 cc. produced an inflammatory reaction, while 0.5 to 2 cc. caused only local pain but never produced a tuberculin-like reaction. The specificity of the tuberculin reaction is indicated by the fact that a milk reaction was obtained equally well after a previous tuberculin injection or a tuberculin reaction after a previous milk injection; while the second tuberculin injection after a similar primary treatment produced no effect at all. In cases having occasional subfebrile temperatures a progressive aggravation with increased temperature was obtained after 0.5 to 2 cc. The fever reaction in the milk treatment could not be controlled as in the tuberculin treatment. Horse serum (beginning with 0.5 and reaching 2 cc. daily in as many as 100 injections) produced more favorable results, especially during cachexia in children, which was attributed not to specific action, but rather to an action on the cachexia. The improvement was phenomenal within a few weeks. The treatment is only suitable for children in whom it produces no anaphylaxis; for this reason it cannot be used in adults. Partigens were used for diagnosis of immunity and for treatment. Judgment of the intensity of the reaction in 15 cases was difficult, on account of the difference in reaction obtained in different parts of the body. The skin reaction to partigens is no index of the immunity of the different organs or cell complexes of the body to tuberculosis. In a study of 150 cases, injected in the same part of the skin, the variations at different times were so great that no diagnostic or prognostic conclusions could be drawn. It frequently occurred that where an increase in titre might be expected the reverse was obtained. Healthy persons and patients of good resistance usually show a high intracutaneous titre to partigens. Clinical improvement is often associated with increase in intracutaneous titre. MTbR is a useful preparation for treatment, but has no visible advantages over previous forms of tuberculin treatment. In 30 cases favorable results were obtained. It is indicated in moderately severe cases where a focal reaction is to be avoided. Friedmann's vaccine was used in 63 cases, observed from seven weeks to twenty-two months. In the majority of the cases a focal reaction was not obtained. In one-half of the cases the local focus (site of injection) ruptured and later healed. No relation was noted between the course of the disease and the reaction at the local site of injection. Disappearance of toxic symptoms during the weeks following the injections was not observed. Nine cases were injected for prophylaxis and a year later the lungs were normal. Even stage II and III cases which made a good clinical impression during treatment died within six to eight months. Friedmann's vaccine is no remedy for tuberculosis, since it failed to produce results even in early cases and those with a good prognosis.—*Über einige neuere Behandlungsmethoden bei Lungentuberkulose, F. Klemperer, Berl. klin. Wchnschr., November 8 and 15, 1920, lvii, 1065 and 1095.*

Alpine Health Resorts for Tuberculous Patients.—Many indications and contraindications for curing in high altitudes are considered. Best results are obtained in the earlier cases which still manifest resistance. In toxemia and high fever cases, the body does not react so well. Cases with large multiple cavities are not suitable nor are those with a tendency to massive hemorrhages. Those with a tendency to frequent but small hemoptyses will react. Complicating chronic bronchitis is not a contraindication. Bronchial asthma is almost always helped, except in cases with marked emphysema and bronchitis. Laryngeal tuberculosis, if not too far advanced, is benefited. Pulmonary cases with decompensated hearts should not be allowed in high altitudes. Most of the cases of anemia are bettered. Rheumatic tendencies are not contraindications. Favorable results are obtained in fatigued and neurasthenic patients.—*Alpine Health Resorts for Tuberculous Subjects, B. Hudson, Brit. Jour. Tuberc., 1919, xiii, 141.*

Pütter's System of Caring for Those with Pulmonary Tuberculosis.—This system of stations in which patients with pulmonary tuberculosis are cared for has been in use in Germany for twenty years. A station comprises a director, a physician skilled in pulmonary diseases, and a nursing sister. No research is attempted in these stations, but only the practical care of patients. Various advantages of this system are enumerated, and recommendation is made that instead of the lung specialist rather a layman, trained in this particular line of work, should direct these stations.—*Das System Pütter, P. Hesse, Ztschr. f. Tuberk., April 20, 1920, xxxii, 8.*

Oxygen or Carbon Dioxide for Initial Artificial Pneumothorax.—In order to determine whether oxygen or carbon dioxide gas is best suited for preventing gas emboli, a study was made of the absorption of these gases in citrated pig blood and water. Amounts of 50 to 60 cc. in an apparatus specially devised for this purpose were used, the time allowed being ¼ to 2¼ minutes at room temperature. In ¼ minute water absorbed 19.6 cc. of a total 27 cc. of carbon dioxide, but no air or oxygen. Oxygen-rich blood absorbed, in 1½ minutes, 0.8 cc. oxygen and 17.8 cc. carbon dioxide of 27 cc. Oxygen-poor blood absorbed, in 1½ minutes, 1.3 cc. oxygen. Carbon dioxide-rich blood absorbed, in 2¼ minutes, 19.2 cc. carbon dioxide of 27 cc., and in ¼ minute 10.5 cc. Small amounts of carbon dioxide could not produce gas emboli on account of its rapid absorption by the blood, and it is to be preferred to oxygen or air in the primary institution of artificial pneumothorax for this reason.—*Ist Sauerstoff oder Kohlensäure zur Erstanlegung des künstlichen Pneumothorax geeigneter? Versuche über die Schnelligkeit der Absorption von Sauerstoff und Kohlensäure im Blut, H. Grass, Beitr. z. klin. d. Tuberk., March 15, 1921, xlvii, 160.*

Investigation of the Pleural Cavity in Artificial Pneumothorax.—Burnand maintains that much information regarding the condition of the pleura, whether adhesions are present or not, can be obtained from the skilful use of the needle and obturator, even when the manometer fails to show the looked for fluctuations. While recognizing the importance of the manometer, he believes that evidence given by the needle is neglected, and discusses various signs which point to free or adherent pleura and which are useful in deciding whether it is possible to produce a successful pneumothorax or not.—*Note sur la recherche de l'espade pleural dans le pneumothorax artificiel, M. R. Burnand, Rev. méd. d. l. Suisse Rom., March, 1921, xli, 148.*

Contraindications to the Administration of Artificial Pneumothorax.—Two cases are reported in which pneumothorax was administered with fatal results due to heart failure. The fatalities are attributed by the author to a combination of age (both patients were fifty years old), emphysema and rigidity of the thoracic wall.—*Eine Kontraindikation für Anlegung des künstlichen Pneumothorax, E. Rautenberg, Ztschr. f. Tuberk., April 20, 1920, xxxii, 13.*

Light Treatment of Tuberculosis.—Sunlight and artificial light therapy has been carried out for six years by the author. Twelve cases are taken up in detail (pulmonary, laryngeal, lymph node, bone and skin tuberculosis) with extraordinary results. These are illustrated with photographs and mentioned only as demonstrations of the results with light. The cases that did not respond were those in poor general condition with poor reacting powers.—*Bericht über einige mit Lichtbad behandelte Tuberkulosefälle, v. Malmström, Svenska Läkartiduingen, 1920, no. 15, 329.*

Light Treatment of Pulmonary and Laryngeal Tuberculosis.—Since 1914 patients have been treated in the Silkeborg Sanatorium, Denmark, in most cases with the mercury quartz light and only in a few cases with the carbon arc. Radiations were general, with daily exposures of ten to

sixty minutes. There were no harmful results, but in a few cases it was necessary to discontinue these radiations because of fever, bronchitis, pleurisy and even erysipelas. The exposed patients were only those who were otherwise uninfluenced by ordinary routine. One hundred and thirty-three patients with pulmonary disease were treated with the quartz light; 80 were favorably influenced, 38 not influenced and 15 became worse. In 25 of 79 cases with bacilli, the sputum became bacilli-free. Twenty-five of 46 fever patients became afebrile. The general condition was bettered, as well as the appetite. Cases of pleurisy were favorably influenced. Of 22 cases of tuberculosis of the larynx, 6 were healed, 8 improved, 5 unchanged and 3 progressed. The conclusion was that light treatment in these forms of tuberculosis was a favorable aid.—*Die Lichtbehandlung der Lungen- und Larynxtuberkulose, Begtrup-Hansen, Nordisk Bibliothek for Terapi, 1920, ii, 7.*

Theory and Practice of Light Treatment of Tuberculosis.—Pigment is a collector of ray energy and transforms it into chemical energy. There may be a system of autonomic glands in connection with the skin which may give off an internal secretion. Through raying, their activity and the catalytic processes of the skin are increased. By this means substances are found which have a healing effect on the body. Comparison is made with the internal secretion given off by the adrenal glands where, in Addison's disease when these glands functionate poorly, the skin tries to compensate and as a result forms pigment. The quartz lamp should not be overestimated because it has an overabundance of short waves which are absent from sunlight. Problems are mentioned which must be worked out before a further understanding of the healing effect of light is had. Sunlight treatment is particularly recommended for it's energy-producing ability. On the ground of physical and chemical studies the action of light rays upon the body is commended.—*Zur Theorie und Praxis der Strahlenbehandlung der Tuberkulose, v. Schrötter, Strahlentherapie, 1920, xi, 605.*

Light Treatment of Bone and Joint Tuberculosis.—Sunlight treatment together with hyperemia is highly recommended. This can be applied in the lowlands as well as in the highlands. Artificial sunlight can be employed but the lamp must be such as to produce sufficient warmth. The writer emphasizes warmth as much more important than the chemical rays, and slowly increasing doses are employed. Tuberculin can also aid the treatment.—*Die Lichtbehandlung der Knochen- und Gelenktuberkulose, O. Kisch, Zeitschr. f. ärztl. Fortbild., 1920, no. 11.*

Heliotherapy in Surgical Tuberculosis.—Heliotherapy is only valuable as an adjuvant in the treatment of surgical tuberculosis together with rest, fresh air, diet, X-rays and vaccine treatment. Not all forms heal even with these. We must individualize. The bactericidal effect and the ability to produce inflammatory reactions are important. Development of a pigment is protective. It may also change the short waves to longer ones and thereby allow deep penetration. Pigment may be a measurement of ability to react. Sunlight treatment is especially valuable for abscesses and fistulae. It hastens the expulsion of sequestra and the return of motion to ankylosed joints. It should not be employed in patients who cannot pigment, in amyloid diseases and in acute, septic cases.—*The Rôle of Heliotherapy in Surgical Tuberculosis, H. Gauvain, Tubercle, 1920, i, 401.*

Heliotherapy of Surgical Tuberculosis and Necessity of Community Sanatoria for Such Patients.—Sunlight in high altitudes gives better results than that in the lowlands. It is quantitatively and qualitatively more favorable. The healing factors of high altitudes, namely, lessened barometric pressure, dryness, and freedom from dust are also important. Operative measures are also to be employed at times, namely, punctures, elimination of sequestra, and cleansing of abscesses of the soft parts. The quartz lamp is also advised where sunlight is absent. For surgical tuberculosis, community sanatoria should be built in high altitudes. There, operating-rooms with X-ray and orthopedic and mechanical appliances, which so often are lacking in sanatoria for pulmonary disease should be added.—*Einiges über die Sonnenlichtbehandlung der chirurgischen Tuberkulose und über die Notwendigkeit der Erstellung von Volkssanatorien für chirurgisch Tuberkulose, O. Barnhard, Schweiz. Rundschau f. Med., 1920, no. 22.*

Surgery of Tuberculous Joints Contrasted with Heliotherapy.—Thirteen cases of joint tuberculosis in patients, aged four to thirty-eight years, were all treated with resection by Kocher's method and healed completely. Rollier's sunlight treatment requires an abundance of time and money, and because of the

inability of so many patients to carry out this procedure resection is often a more advisable method of treatment. The author has had no personal experience with sunlight treatment.—*Tuberculosis of the Joints. Rollier's Heliotherapy, G. Schweizer, Surg. Gynecol. and Obstetrics, 1920, xxx, 581.*

Heliotherapy of Lupus.—Many of the author's opinions, which have been stated on various occasions, are again presented. Light does not directly affect the tuberculous foci; only the skin is influenced. Pigment is the most important result of light. It is formed in the germinal layer, where the skin absorbs the light and assimilates it to melanin. This, like an internal secretion, is given off to the blood. An internal secretion of the germinal layer may be considered the cause of the hyperemia, so that pigmentation together with hyperemia must be had before one obtains results. The best treatment of lupus is the combination of the local with general exposures.—*Aus der Sonnenlichtbehandlung des Lupus, Jesionek, Strahlentherapie, 1920, xi, 321.*

Artificial Sunlight Treatment of Pulmonary Tuberculosis.—Of 123 patients treated with the quartz light, 8 progressive patients showed no improvement. The other cases were all of favorable prognosis, so that here the curative action of the quartz light had to be proved. No harmful effects, including hemoptysis, were ever seen. In prolonged bleeding a favorable effect seemed to be observed. Subjective betterment was regularly noted, although an increase in weight rarely occurred. The exposures can affect the disease only indirectly. Hilum tuberculosis gave good results. It is best to make use of the stimulating effect of this treatment for prevention in children rather than in adults who already have tuberculosis. A direct effect upon the tubercle bacilli in the depths can not be assumed. A formation of antibodies is not proved. The results in pulmonary tuberculosis in innumerable sanatoria are widely varied.—*Was leistet die künstliche Höhensonne bei der Behandlung der Lungentuberkulose, K. Traugott, Therap. Halbmonatsh., 1920, xiii, 350.*

Artificial Sunlight Treatment of Tuberculosis in Guinea Pigs.—Applications of artificial sunlight to experimentally infected tuberculous guinea pigs did not lengthen the life of the animals in any case. The lack of response may possibly be explained by the inability of the ultraviolet rays to penetrate.—*Höhensonne und experimentelle innere Tuberkulose beim Meerschweinchen, Hase, Zeitschr. für Phys. u. Diät. Therap., 1920, ii.*

Combined X-ray and Artificial Light Treatment of Local and Pulmonary Tuberculosis.—X-ray treatment does not always offer favorable results, and mercury quartz light exposures are therefore added in periods of five to thirty minutes, front and back, and at a distance of 50 cm., employing a dosage of X-ray according to *H.*: for deep foci 10 *H.* per field exposure, and for superficial areas (without filter) 45 *H.* per field. A 4 mm. aluminum, zinc and copper filter appeared at times too dangerous, setting up severe burns. Good results were obtained in tuberculosis of the skin, glands, joints and bones, pleura and peritoneum, and urogenital tract. Lymph nodes were treated for six months. In pulmonary disease good results were obtained only in the indurative types of hilum affections and the dosage here was 5 *H.*, front and back, in two sittings, with an interval of two to three days between. Good results in laryngeal tuberculosis were obtained by using 10 *H.* every three weeks.—*Note sur la radiothérapie combinée des tuberculoses locales et des tuberculoses pulmonaires, A. Gunsett, Jour. de radiol. et d'électrol., 1920, iv, 289.*

Treatment of Laryngeal Tuberculosis.—The healing action of the carbon arc light for lupus and surgical tuberculosis is better than that of the less penetrating quartz light. One hundred cases of moderately advanced pulmonary tuberculosis, combined with disease of the larynx, were treated with general radiations of the carbon arc light, by employing three or four powerful lamps at one time. Carbon electrodes, conveying 20 amperes, were used in lamps which ordinarily carried only 6 to 8 amperes. Exposures were made daily for a quarter of an hour the first week, then one-half hour in the second week, and three-quarters of an hour in the third week, and after that one hour. In some cases healing was complete without local treatment. In others the galvanocautery curettage, lactic acid applications, or other operative procedures were employed. Silence treatment was also carried out. Out of 79 patients, 21 were completely healed, 8 almost healed, 24 showed a marked betterment, 14 only slight, and 3 no improvement. Nine hopeless cases became worse and 6 of these died. Of the healed cases, 5 later became free from their pulmonary disease without any residue in the larynx.—*Die Behandlung der Larynxtuberkulose, N. Blegvad, Arch. f. Laryngol. und Rhinol., 1920, xxxiii, 746.*

Treatment of Tuberculous Peritonitis.—Eleven cases treated by the author were healed by radiations with the quartz

lamp. If the lamp is not a complete substitute for natural sunlight, nevertheless it is a most important aid which can supply much of the healing power of sunlight when the latter cannot be obtained.—*Über Therapie bei Peritonitis tuberculosa, C. Kasemayer, Inaug. Diss., Greifswald, 1919.*

The Influence of Aureol Lamp Rays on Immunity in Pulmonary Tuberculosis.—The Siemens aureol lamp is a carbon arc lamp with the carbons lengthened so as to increase the amount of ultraviolet rays. The light rays are given off chiefly from the carbon points, whereas the arc itself delivers most of the ultraviolets. The glass globe is of a special type which is permeable to the ultraviolet rays which are present in sunlight. The short ultraviolets do not penetrate. Ordinary glass would absorb too many of the ultraviolets. The infrared rays and the ultraviolets to 290 $\mu\mu$ are therefore also utilized. The author used the partial antigens of Much, including the egg-white, group *A*, the fatty acid lipoid, *F*, and the neutral fat and alcoholic growth, *N*. It has been shown that the weaker the concentration which brings forth the reaction in the skin, the greater is the immunity of the body. In therapeutics a fall of the titre signifies progression of disease; a rise indicates improvement. Four patients were rayed on the trunk at a distance of 75 cm. for five minutes at the start, increasing three minutes every day, up to one hour. Both front and back were exposed. Pigmentation developed in two patients. In all four patients there was an increase of the immunity to all three antigens. This result ran almost parallel to that of Müller who found that X-rays increased reactivity to the fatty acid, whereas the mercury quartz light increased it to the neutral fat, and sunlight increased it to all three. The aureol lamp acted like sunlight.—*Über den Einfluss der Aureollampenbestrahlungen auf die Immunität Lungentuberkulöser, E. Hirschmann, Strahlentherapie, May, 1920, xi, 420.*

Ultraviolet Ray Treatment of Rickets.—Eighty rachitic children, from three months to nine years of age of whom the majority were from two to four years of age, were treated. Most of them were recent cases, but many were old or already healing. Some were those that had had deformities, as well as several in whom it was necessary to avoid crippling. The clinical results were controlled by X-ray pictures. The mercury quartz light was employed. A healing action was demonstrated in most forms. It developed more quickly than with the other means of treatment and continued over two months after the cessation of exposures. The total healing period in infants covered two to four weeks; in children of one year, one to two months; in children of two to four years, two to six months; in older children, up to nine months; and in healed rickets, one to two months. Long-wave light is less efficient than short waves and the most important healing rays are those under 300 $\mu\mu$. It was demonstrated that the visible light and warm rays do not heal rickets. The younger the child the better the after-effects. One infant with very marked craniotabes was exposed four times in ten days, with the blue light for thirty minutes at a distance of 40 cm. and ten days later the skull was completely hardened. Other similar patients were helped; but in three cases the employment of the "blue film," with three months' exposure, gave no results. One child that was similarly exposed to the sun and developed a strong pigment showed no improvement. The healing of fractures, after surgical intervention, showed no changes, whether they were rayed or not, but spontaneous fractures showed rapid healing. Exposures of twenty minutes were the most desirable, employing them three times a week. The most favorable distance was from 70 to 100 cm. The blue filter should be employed only for infants, with exposures of at least thirty minutes and at a distance of 30 to 50 cm. Tetany patients were rayed very intensively daily and on both sides. Ultraviolet rays influence florid and old cases of rickets, healing rachitic bone deformities, tetany, and the sweats and nervous manifestations of such patients. It does not influence the metarachitic bone fractures, the nonrachitic diseases of the bone, nor the reconstructed or crippled bones. It influences only indirectly the growth of bone and the teething.—*Die Ultraviolettherapie der Rachitis, K. Huldschinsky, Strahlentherapie, May, 1920, xi, 435.*

Conservative Treatment of Peritoneal Tuberculosis with X-rays.—X-ray treatment is highly recommended, both alone and in combination with operation. Best results are obtained in those cases with abundant ascites. Raying should be carried out generally after the operation. Many cases not responding to operation and showing a residue are healed by terminal radiations.—*Zur konservativen Behandlung der Bauchfelltuberkulose mit Roentgenstrahlen, A. Bircher, Strahlentherapie, 1920, xi, 647.*

Action of Small Doses of X-rays.—Rabbits were rayed, some healthy and some infected with tuberculosis. The healthy animals suffered no harm from small doses of 0.01 to 1.25 S. N. The infected animals showed a more rapid and greater dissemination of the disease. If one, however, allows the animals to manifest their resistance by raying small localized areas of tuberculosis with small doses of X-rays, then the resistance against exposures is greatly increased. On this basis some patients were treated by exposing them to small doses of soft rays and an improvement was noticed.—*Untersuchung über die Wirkung kleiner Röntgendosen, H. Eiken, Ugeskrift f. Laeger, 1919, no. 48.*

Treatment of Lupus with Iodine Exposed to X-rays.—Lupus has been treated with X-rays, radium, mesothorium, quartz, diathermia and hot air, either individually or in combination. With these methods it has been improved, but rarely healed. Operative measures or exposures with concentrated arc lights have accomplished cures. Iodine after exposures to the X-ray is found to be more easily liberated. The high atomic weight which "Iodolyester" possesses allows it by means of a strong absorption of the X-ray to exercise a marked biological action upon the diseased cells. Results in eleven cases at the Elberfeld Skin Clinic were very encouraging and demonstrated the value of this treatment.—*Behandlung des Lupus mit röntgenisierten Jodsubstanzen, Bessunger, Strahlentherapie, May, 1920, xi, 345.*

X-rays in the Treatment of Tuberculous Arthritis and Osteomyelitis.—In tuberculous arthritis and osteomyelitis there is marked improvement after the first few radiations. Pain and muscle spasm disappear almost at once, a feeling of improvement and well being replace malaise and discouragement, and the night cries will disappear. The character of the discharge from the sinuses changes. At first it may be increased, but for a few days only, when it changes to a serous type and gradually diminishes in amount, frequently drying up permanently. Some of the patients started to gain weight and color immediately after the onset of the treatments.—*Roentgen Ray Therapy in Chronic Diseases of the Bones, Joints and Tendons, H. B. Philips and H. Finkelstein, New York M. J., October 19, 1921, cxiv, 448.*

Friedmann's Treatment of Tuberculosis.—Friedmann's vaccine was used in 500 ambulant cases of pulmonary tuberculosis of various stages, glandular involvement and tuberculous pleurisies. The majority of the cases showed marked improvement in physical signs and constitutional symptoms. Tuberculosis of the neck lymph nodes disappeared gradually within three to six months. Early apical pulmonary cases gave the best results. Early skin tuberculosis was healed in six weeks. In many cases an aggravation occurred a few months after the primary injection, but disappeared after the second injection.—*Zur Friedmannschen Tuberkulosebehandlung, E. Gerdeck, Berl. klin. Wchnschr., April 25, 1921, lviii, 417.*

The Friedmann Vaccine.—An exhaustive survey of the literature on the Friedmann material led to the following conclusions: Proof is wanting for Friedmann's claim that his turtle bacillus I is a modified human type tubercle bacillus greatly reduced in virulence. Other acid-fast microorganisms, admittedly not related to the tubercle bacillus, have similar growth characteristics as respects temperature. Artificial transformation has never been definitely proved. Friedmann fails to give due consideration to the difference in rapidity and luxuriance of growth between the case of the true tubercle bacillus and that of the turtle bacillus. Although most observers have failed to distinguish between acid-fast bacilli by biological tests, a few have made sharp differentiations by agglutination. The overwhelming majority of investigators have found almost no pathogenicity for Friedmann's stock strains or for the cultures obtained from abscesses produced in man by inoculation with these germs. Occasionally, tubercles are produced by inoculation, but these are to be considered foreign body tubercles. Extension from them does not take place, nor does transplantation of such affected organs into other guinea pigs lead to infection. In his own experience Lange obtained similar results as to virulence. Bacilli, agreeing in cultural characteristics with the Friedmann bacillus, were isolated from ampules of the Friedmann material. Adaptability to varying temperature, more characteristic of saprophytes than pathogens, was noted. In doses one thousand times that necessary to kill guinea pigs with true tubercle bacilli, the material was, aside from the occasional production of abscesses, nonpathogenic. The isolated cultures were likewise nonpathogenic for guinea pigs in doses of 20 mgm., a million times the lethal dose of true tubercle bacilli. Eighty mgm. was avirulent for rabbits. One mgm., subcutaneously or intraperitoneally, was harmless for mice,

as was 60 mgm. for rats. The bacillus was avirulent for fowls. A tuberculin prepared from it was nontoxic for normal animals in large doses. It was active on tuberculous animals, but only in higher doses than those required with true tuberculin. The conclusion was that the Friedmann turtle bacillus stands closer to the saprophytic acid-fast organisms than to the true tubercle bacillus and is no more dangerous than the unquestionably saprophytic forms.—*Über das Friedmannsche Tuberkulose-Schutz-und-Heilmittel. L. Lange, Ztschr. f. Immunitätsforsch., August, 1921, xxxii, 229.*

Friedmann's Vaccine in Pulmonary Tuberculosis.—Twenty-two cases were treated from October, 1918, to September, 1919, and included all stages of the disease. Five were improved after treatment, 9 were uninfluenced and 8 became worse, 3 of the latter dying. The vaccine did not have any beneficial influence which could not have been derived from ordinary dietetic-hygienic methods. The treatment rather seemed in some cases to retard the favorable progress which might be expected in similar cases of pulmonary tuberculosis not treated with the vaccine.—*Erfahrungen mit dem Friedmannschen Heilmittel bei Lungentuberkulose, O. Poehlmann, Beitr. z. Klin. d. Tuberk., March, 15, 1921, xlvii, 95.*

Experiences with Friedmann's Remedy.—Friedmann's vaccine was used in 95 cases of pulmonary tuberculosis, and 59 of these were reëxamined one to two years later. An X-ray was taken in all the cases before treatment and in many at reëxamination. Five hopeless cases at the time of treatment died. In 15, aggravation and progression of the disease occurred, 21 gave dubious results and 18 improved; of the latter 8 were definitely cured.—*Erfahrungen über das Friedmann'sche Heil-und Schutzmittel, Heggeney, Berl. klin. Wchnschr., August 29, 1921, lviii, 1037.*

Correct and Incorrect Application of Friedmann's Remedy.—Failures in the use of Friedmann's vaccine are due either to error in judging the indications for adminstration or dosage, or faulty observations combined with neglect in following up treatment after two to four months in cases showing aggravation. Three cases are reported to confirm the latter assertion. Of 75 mild cases with apical catarrh, positive roentgenological findings, temperature of 38°C., and toxic symptoms, 62 were clinically cured. In the remainder of the cases, grippe and disturbances at the area of inoculation prevented good effects. Good results were obtained in several cases of tuberculosis of the prostate and vas deferens. A case of scrofulosis in a child inoculated in 1914 was well in 1920, and the glands were hardly perceptible.—*Das Friedmann'sche Mittel bei richtiger und falscher Anwendung, A. V. Barcza, Berl. klin. Wchnschr., August 29, 1921, lviii, 1038.*

Friedmann's Remedy in the Light of Ehrlich's Side Chain Theory.—A discussion of Friedmann's remedy attempts to explain its favorable action on the basis of the formation of antibodies with "multiavid" binding properties, which may be bound by other substances and thus account for the unfavorable results obtained at times. Raying, mechanotherapy and arsenic treatment may divert the antibodies, and thus are contraindicated.—*Die Friedmann'sche Heilmittel und die Leitlinien seiner Anwendung im Lichte der Ehrlich'schen Seitenkettentheorie, I. Tranjen, Berl. klin. Wchnschr., June 6, 1921, lviii, 601.*

Experimental Immunity Effects of Friedmann's Vaccine.—Friedmann's vaccine (100 mgm. of a young culture) was inoculated subcutaneously into guinea pigs, and six weeks later the animals were infected intracutaneously with a four weeks old culture of slightly virulent human tubercle bacilli. Sixteen guinea pigs, previously inoculated, and 16 controls received doses of 0.000,1, 0.000,01, 0.000,001, and 0.000,000,1 mgm. of bacilli in 0.1 cc. of fluid. All the animals developed a fatal tuberculosis, but a distinct difference in the development of the primary tuberculous lesions of the skin was noted in the previously inoculated animals. The formation of the ulcer was either prevented or was very much retarded, the productive inflammation predominating over the necrotic processes. This degree of increased resistance is due to the antigenic effect of the Friedmann's bacilli, as the interval of six weeks between inoculation and infection and the small amount of injected albuminous material make a nonspecific action improbable.—*Experimentelle Untersuchungen über die Wirksamkeit der Schutzimpfung nach Friedmann an intracutan inficierten Meerschweinchen, G. Töppich, Berl. klin. Wchnschr., August 29, 1921, lviii, 1035.*

Krysolgan Chemotherapy. — The sodium salt of krysolgan (p.-amino-o.-aurophenolcarbolate) was injected in ten per cent solution intravenously in doses of 0.25 to 0.2 gm. in 25 cases of chronic pulmonary tuberculosis, of which 15 were

complicated by tuberculous laryngitis. Of the 10 uncomplicated treated cases none was cured, 5 were noticeably improved, and 5 remained unimproved. Of the 15 cases complicated with laryngitis none was cured, 7 were noticeably improved and 8 were not improved. There are no untoward effects from the administration of the drug, except in the weaker patients, in whom it may produce symptoms which necessitate cessation of the treatment. These symptoms are rise of temperature, lassitude, pains in the limbs, drowsiness, difficulty in deglutition, sensation of a foreign body in the throat, and especially nephritis (in 3 of the cases) with from a trace of albumin to an acute hemorrhagic nephritis.—*Klinische Beiträge zur Behandlung der Tuberkulose mit "Krysolgan", H. Rickmann, Ztschr. f. Tuberk., April 20, 1920, xxxii, 16.*

Chemotherapy of Tuberculosis with Collargol and with Colloidal Copper.—Reasoning that the action of chemotherapeutic agents may be dependent upon either pharmacological or bactericidal properties of the substance in question on the one hand and immunity phenomena on the other, emphasis is laid upon three points,—increasing the general cellular power, inhibition of and partial destruction of tubercle bacilli, and a biochemical action occasioning a liberation of antigenic substances. Colloidal copper (0.0008 gm. per cc.) and collargol (1 cc.=0.12 gm.) were given to patients. The administration of 2 cc. of colloidal copper, subcutaneously and intravenously, produced no symptoms in rabbits and guinea pigs, when given as many as 10 injections per month. Eleven patients were given intravenous injections (2 to 3 cc.), but undesirable symptoms made the subcutaneous method seem more desirable; 12 patients being given about 80 injections, which also proved unsuccessful for obtaining the desired end. The collargol experiments proved more satisfactory: 32 cases were given 100 injections of 2.2 cc. solution. The cases were grouped as (1) chronic proliferative without tissue destruction, complication, or involvement of other organs (14 cases), (2) chronic proliferative with small cavities (5 cases), (3) chronic proliferative with pronounced cavitation (9 cases) and (4) extreme chronic cavernous phthisis with larynx and intestinal, etc., complications (4 cases). In 3 cases of (1) the injections favorably influenced the clinical picture; in 8 cases (6 (1) and 2 (2)) they led to an increase of fever and general symptomatology, but to lasting clinical benefit; in 6 cases (2 (1), 1 (2) and 3 (3)) to an increase in fever and general symptomatology without lasting clinical benefit; in 8 cases (2 (1), 1 (2), 4 (3) and 3 (4)) the temperature was reduced but the general condition was not influenced favorably; and in 7 cases (1 (1), 1 (2), 2 (3) and 3 (4)) the injections did not affect the temperature curve or general well being of the patient. Collargol therapy is considered a valuable addition in treating cases of the chronic proliferative type, in which sharp remissions or intermissions in temperature indicate severe septic conditions.—*Beitrag zur Chemotherapie der Tuberkulose. Versuche mit Collargol und kolloidalem Kupfer, H. V. Hayek Beitr. z. Klin. d. Tuberk., November 25, 1920, xlv, 17.*

Rôle of Medical Profession in Prevention of Tuberculosis.—A periodic state census which would classify all persons by means of the Pirquet test into those with open tuberculosis, those with latent infection, and those as yet free from infection, would seem to be a practical procedure. From this might follow the segregation of the first group, not only temporarily in sanatoriums, but later also in industrial systems where remunerative work would be adapted to subnormal men. The two remaining groups should be as far as possible under medical observation, particularly those with latent infection; and although the task would at first seem to be Herculean, as the sources of infection became cut off it would become less and less difficult. Periodic Pirquet examinations of children would detect the onset of infection and lead to a search for an elimination of the causes. Such a plan might be tested by an initial experiment in some selected area. Although we have come to recognize that the complete eradication of the tubercle bacillus may be an unattainable ideal, we must not relax our efforts to diminish existing foci of infection. In this respect education of both laity and physicians is of great importance and requires more and better organization, even though much has already been done in this direction. Medical men are in a position (1) to diminish and prevent infection, (2) to improve the resistance of the population by securing healthy surroundings, proper feeding and occupations, and (3) to promote the hygienic education of the masses in order to obtain their coöperation in these essentials. In the prevention of tuberculosis, medical men play their part in the following capacities: 1. As individual workers in ordinary practice, and special branches of research, and as teachers of medical students. Exerting an individual influence in his care of a certain number of people whose life history and physical con-

dition he knows as no one else can, a medical man is the first line of defense against all forms of disease which play so large a contributory part in the clinical development of tuberculosis. The medical attendant is peculiarly well placed to supervise the general hygiene of the house and its occupants and thus exert an effect on tuberculosis, which is largely a home-bred disease. It is within his province to detect the earliest and intangible signs of failure of health from any cause, to advise as to the need for change of scene, habits, occupation, etc., to keep in close touch with health and child welfare work, and to make early diagnosis and notification of the disease. The individual worker and student of the various clinical, pathological and epidemiological aspects of tuberculosis are elements of the greatest importance in preventive work and deserve all possible support, monetary as well as moral. Physicians attached to teaching hospitals have a great responsibility, as they mold the outlook of the future general practitioner in regard to tuberculosis. There are, however, some points on which improvement is desirable. With the activity of special hospitals at which students rarely attend, and at tuberculosis dispensaries, with the natural reluctance of general hospitals to block their beds with cases of tuberculosis, there is a growing danger that full instruction in one of the commonest diseases will not be commensurate with its importance. The need for the creation of university chairs in tuberculosis is often manifested, but the supply falls far short of the demand. 2. As medical officers of state and other organizations for the prevention of disease in general and of tuberculosis in particular, medical men can play an important part in the prevention of tuberculosis. 3. As members, leaders and advisers of the general public and of municipal and other bodies, particularly the National Association for the Prevention of Tuberculosis, medical men take an active share in combating tuberculosis. They can contribute in the forwarding of all schemes for the improvement of the national well-being, which is the most efficacious means of fighting the infection.—*The Rôle of the Medical Profession in the Prevention of Tuberculosis, H. Rolleston, Internat. Jour. Pub. Health, September–October, 1921, ii, 465.*

Framingham Demonstration and Industrial Medicine.—An important phase of the Framingham Demonstration has comprised its industrial relationships and contacts. There are approximately 5,000 industrial workers in Framingham, of which about one-half are employed in a single plant which manufactures paper articles, while carpet manufacturing, boiler construction, foundries, and the manufacture of shoes and automobile bodies make up the other industries. The Demonstration has attempted a thorough survey of the industrial hazards of the community and has tried to encourage the local industries to provide adequate medical, nursing, clinic and dental services for their employees. When it started this work, only one nurse and one part-time safety engineer were employed by the industries of the community. At present, between 70 and 80 per cent of the industrial workers are under reasonably adequate medical, nursing and clinic supervision. The plant, which employs over one-half of all the workers of the community, now has a full-time physician and two nurses and maintains an excellent clinic and first-aid establishment. After the Demonstration, by effective case histories of persons ill with communicable diseases as found in this industry, had illustrated the importance of detecting such affections at the time of initial employment, the principle of compulsory examination of employees was approved and put through, with the support of the management and men. The latter became so impressed with its value that, largely at their request, a system of regular periodical medical examination for all employees was undertaken. The experience of the Framingham Demonstration has suggested that at least one full-time physician and two full-time nurses, and adequate clinic equipment, some provision for dental service and at least part-time arrangements for safety are required for an industrial unit of 2,500 people. The main functions of the nursing and medical staff would be (1) the routine operation of first-aid facilities in clinics, (2) the diagnosis of chronic affections with their reference to physicians of the patient's own choosing, (3) general health education, (4) general safety work, (5) general plant sanitation, (6) special class instruction in personal hygiene as related to matters of particular occupations as well as general habits of life, (7) particular medical advice for executive employees, (8) the regular medical examination of all new employees, and (9) the regular periodic reëxamination of permanent employees. Such medical and nursing facilities in industry can only be used to their full advantage if they are developed and operated in close coöperation with the labor groups concerned.—*The Framingham Health Demonstration and Industrial Medicine, D. B. Armstrong, Jour. Industr. Hyg., October, 1921, iii, 183.*

Need of Assistance for Preventoriums.—The sanatoriums for tuberculosis are reimbursed by the state and the communes for the care of patients; but no such provision exists for children admitted to the preventoriums. This defect in the law should be remedied, thereby permitting appropriations and gifts to be used solely for creating new establishments. This would not only be right but would be economically advantageous, since it would be the most effective means of diminishing the number of invalids that must later be cared for in hospitals or be otherwise assisted. The preventoriums should be included with the sanatoriums and benefit by the laws which provide for these.—*Création de préventoriums, nécessité d'assurer leur fonctionnement, Mouisset (Lyons), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 143.*

The Oeuvre Grancher.—The work of placing healthy children of tuberculous parents in families chosen by local physicians has been so convincing that branches have been rapidly forming in the departments, till there are now more than twenty which have joined themselves into a national federation. The Grancher plan is in such favor that it has lately been recommended by the Congress for the Advancement of Science and other learned societies. The movement is not limited to France. Work of the Grancher type was organized in Belgium before the war, and also in Italy. The Americans are said to have become acquainted in France with antituberculosis dispensaries of the Calmette type, and with the Grancher movement.—*L'oeuvre Grancher de preservation de l'enfance, Granjux (France), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 140.*

Preservation of Infants.—When Grancher founded his work the belief prevailed that tuberculosis of suckling children was rare and inexorably fatal. The Grancher work, consequently, was designed for children from three to thirteen years of age. We now know that tuberculosis of infants is nearly, if not quite always, contracted at the mother's breast; that if the child is separated from the mother at once it does not contract tuberculosis, and that, if separated from her after infection has occurred, it may be saved from death. The problem of saving nurslings is quite different from the problem of saving children old enough to share the ordinary diet of the families among whom they are distributed. A centre for the placing of nursing babies calls for a milk station, a visiting nurse who superintends the diet, and a regular consulting physician. Some attempts still in the experimental stage, have been made in France. These cannot be considered to have reached the same status as the Grancher work but they are, nevertheless, material for encouragement and inspiration.—*La préservation du nourrisson, L. Bernard (France), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 141.*

The Struggle against Tuberculosis in France.—A large scale campaign for the prevention of tuberculosis is of recent origin in France. Nevertheless, immense progress has been made in a few years. There has been a general federation of tuberculosis societies and a fusion with or withdrawal in favor of public organizations. There are 213 antituberculosis state dispensaries in operation and 155 in process of organization. Besides these, there are a number of dispensaries established by communes and departments. There are 69 sanatoriums, with a total of 7,075 beds, and 26 establishments with 7,006 beds for the care of lymph node and bone tuberculosis. These do not include the preventoriums for children. In addition to the public dispensaries and sanatoriums, there is the school for agricultural reëducation, the Franco-British colony of convalescents at Sillery and other organizations for the disabled. All the departmental organizations are directed by the National Committee of Defense against Tuberculosis. There are central bureaus for information, propaganda, liaison, etc. The National Committee regulates and coördinates the activities of all of France.—*L'état actuel de l'organisation de la lutte antituberculeuse en France, A. Guillon (France), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 129.*

Essentials in Tuberculosis Prophylaxis.—1. A universal movement should be organized to treat tuberculosis as a preventable disease. 2. Funds for this struggle should be provided by insurance against the disease, the only means, perhaps, by which certain and adequate resources could be procured 3. International legislation relating to germ carriers and means of avoiding infection, both human and bovine. 4. Revision of our conceptions respecting the infecting germ with a view to the discovery of a specific treatment. 5. New studies in defense reactions, human and animal, designed to throw light on the sub-

ject of immunity. 6. Establishment of national and international services for obtaining statistics. 7. International legislation against housing human beings in vile quarters with insufficient breathing space. 8. Coördination of societies for the protection of children, with leagues against alcoholism and the abuse of tobacco. 9. An international committee to prepare a program for the struggle against tuberculosis, to be made from the scientific and the social approaches. There should be many stations for providing clothing for persons and beds, and for furnishing separate beds in families where they would be a means of preventing infection. There should also be education in domestic prophylaxis adapted to the actual life as it is being lived in households containing tuberculous members, above all where there is open tuberculosis.—*Organisation de la prophylaxie de la tuberculose, A. E. y Capo (Spain), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 144.*

Present Efforts Against Tuberculosis in Catalonia.—Tuberculosis is on the increase in Catalonia and the housing problem is acute. Through a central institution at Barcelona the social organizations against tuberculosis in Catalonia have inaugurated a campaign of education in prophylaxis and the increase of facilities for the care of the tuberculous poor.—*Plan immédiate de la lutte antituberculeuse en Catalogne, L. Sayé (Spain), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 146.*

Organization of Tuberculosis Prophylaxis in Switzerland.—Owing to the great autonomy of the Swiss cantons the struggle against tuberculosis is largely a result of local initiative, but the regional leagues are grouped into a federal association for all Switzerland. A federal law under consideration expresses the usage in the most advanced cantons. It provides for the registration of all cases of tuberculosis, the disinfection of houses, the hospitalization of contagious cases, the supervision of tenement houses and schools, declaration by physicians of change of residence of patients and failure to comply with sanitary precautions, improvement of dwelling houses, etc. The law provides for appropriations to be made to all institutions engaged in the care of tuberculous persons or the prevention of tuberculosis. The Swiss leagues carry on three principal activities; namely, hospitalization of invalids, protection of children, and sanitation of dwellings. Part of their program includes efforts to abolsh alcoholism, supervision of food and the regulation of industry. There is also a movement directed toward the care of surgical tuberculosis. There are in Switzerland 106 antituberculosis dispensaries, 16 public sanatoriums with 1304 beds, and a great many hospitals which receive tuberculous patients. The beds for advanced cases are too few and there is a movement for the construction of special pavilions annexed to ordinary hospitals. Fines for spitting reach as high as 300 francs, an amount which serves as a sufficient demonstration of the dangers of this practice.—*L'organisation de la prophylaxie de la tuberculose en Suisse, Moris (Switzerland), Conférence internationale contre la tuberculose Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 156.*

Suggestions for Tuberculosis Prophylaxis in Italy.—Marine, alpine and agricultural colonies ought to be general. They would serve the double purpose of education in prophylaxis and protection of the community and the patient. To carry out suitable arrangements on an adequate scale, state aid is indispensable.—*Sur la prophylaxie antituberculeuse, P. Foa (Italy), Conférence international contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 147.*

The Struggle against Tuberculosis in Serbia.—Propaganda is almost the only means of opposition to tuberculosis in Serbia. This is carried on by means of notices in public places, cinema lectures, brochures, etc. Some of the large towns disinfect after the death of tuberculous persons. Only two small hospitals and a few dispensaries exist. The situation, always bad, has become very desperate since 1914. The mortality is about 10 for every 1000 inhabitants. Of every 100 persons 20 are tainted, and 10 in 100 are ill with tuberculosis.—*La lutte contre la tuberculose en Serbie, L. Stoyanovitch (Jugo-Slavia), Conférence international contre la tuberculose, Paris, October 17–21, 1920, Massonet Cie, Paris, 1921, p. 181.*

Antituberculosis Work in Rumania.—In spite of its small urban population, mortality from tuberculosis in Rumania is 31 to 32 per 10,000 inhabitants; in some regions it reaches 50; where the mortality is the greatest the housing conditions are the worst. There are three societies occupied with antituberculosis work. One is a national society engaged in prophylaxis, another is for the protection of children, and

a third is a local and less important society. The present establishments for antituberculosis work consist of three sanatoriums, four dispensaries and two marine sanatoriums. The lack of money is very serious. There is at present a movement among the military authorities toward preventing the return to their homes of tuberculous soldiers and retaining them in insolation camps during their time of military service.—*La lutte antituberculeuse en Roumanie, Cantacuzène, (Rumania), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 163.*

Antituberculosis Work in Greece.—There is an antituberculosis dispensary and another centre for popular education at Athens. Patients with advanced tuberculosis are isolated in a vast hospital-sanatorium at Athens; patients with early tuberculosis are treated in high altitude stations on Parnassus and Pelion. There is a marine sanatorium for bone and lymph node tuberculosis at Voula, and a number of vacation colonies for pretuberculous children.—*La lutte antituberculeuse en Grèce, Cawadias (Greece), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 155.*

The Struggle against Tuberculosis in Holland.—A new law of 1919 has vested the conduct of public health matters in a woman and two men, who are to oversee all local associations and control the state subisdy which has increased from ten thousand florins in 1904 to a million florins at present. An intense effort has been made to combat the appalling increase in tuberculosis that occurred during the war, when the deaths rose from 14 per 10,000 inhabitants in 1914 to 20.25 in 1918. A decrease has already set in.—*Le combat contre la tuberculose dans les Pays-Bas, M. W. Pynappel (Holland), Conférence internationale contra la tuberculose, Paris, October 17–21, 1920, Masson et Cie, 1921, p. 180.*

The Struggle against Tuberculosis in Belgium.—Work for the prevention and cure of tuberculosis has increased greatly since the war, owing to the great increase in funds which the government supplies for this purpose. Dispensaries have increased from 26 to more than 100. Every district has its dispensary; and the program of child care and other antituberculosis measures in use in France, England and the United States is carried on in Belgium. Since the war, an antituberculosis coöperative society, with a capital of about ten million francs, has been established. Its form enables it to receive gifts and legacies and its work is the erection of sanatoriums in parts of Belgium where they are needed. The generous policy of the government and the effective work of the cooperative society seems to promise abundant resources.—*La lutte antituberculeuse en Belgique, G. Gregoire (Belgium), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 161.*

The Antituberculosis Campaign in Denmark.—Tuberculosis has decreased steadily in Denmark during the past forty years, falling from about 2 to about 1 in each thousand during the years from 1890 to 1919. A law, which took effect in 1906, introduced free compulsory disinfection; free treatment for all cases of open consumption; compulsory health certificates for nurses, midwives, teachers and pastors; compulsory declaration by teachers and physicians of all tuberculous school children; removal from service, with pension, for all civil employees and officials; compulsory health certificates for all persons employed in asylums, hospitals for the insane and for all members of families receiving children to be cared for. The state has established hospitals, sanatoriums, dispensaries and convalescent homes. Since 1897, when declaration of all deaths from tuberculosis became obligatory, the mortality curve has decreased regularly and the fall has not been accelerated by the important measures put in force since 1906. However it must be remembered that the law doubtless resulted in a greater number of notifications and that this increase has probably masked an acutal decrease in tuberculosis.—*La lutte antituberculeuse au Danemark, Madsen (Denmark), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 173.*

Tuberculosis Prophylactic Work in Norway.—A Norwegian law of 1900 made the registration and supervision of tuberculous patients obligatory. It provided for the removal to sanatoriums of all patients whose homes were for any reason unsuited to their condition. The cost was distributed in fixed proportions between the state, the district and the commune. Opposition to the law, which existed at first, has completely disappeared and it is generally desired to have its provisions extended, especially to increase the measures for the care of children and the poor. The provision of the law requiring hospitalization of invalids has produced, besides the great sanatoriums, a large

number of tuberculosis homes. These, at first almost exclusively for incurables, have come to be used also for patients undergoing treatment. There are about 90 of these homes, with a total of some 2000 beds. They are departmental or communal or are privately endowed; the state has charge only of the great sanatoriums. The small houses are well adapted to isolate advanced cases. The Association of Norwegian Women, founded in 1901, and the National Association for Combating Tuberculosis, founded in 1910, have been assiduous in the work of propaganda. Much has been done by these and other private organizations. There is great need of funds, especially for establishments for the prevention and care of infantile tuberculosis. There has been a considerable decrease in mortality from phthisis in the entire population and a remarkable decrease in the large cities. In Christiania, from 1910 to 1917, the mortality fell from 3 to 1.78 per 1,000 and in Bergen from 3.1 to 1.96.—*L'oeuvre prophylactique contre la tuberculose en Norvege, N. Heitmann (Norway), Conférence internationale contre la tuberculose, Paris, October 17–21, Masson et Cie, Paris, 1921, p. 166.*

The Struggle against Tuberculosis in Sweden.—The Swedish sanitary organization is extremely decentralized. The state has long encouraged the local governments to maintain dispensaries and sanatoriums and to engage in other preventive and curative work. It has stimulated the local councils by appropriations and the councils have come to include the costs of dispensaries in their budgets. The local boards have been educated and inspired by the Swedish National League against Tuberculosis, which has been the pioneer in the work of instituting new experiments and demonstrating the practical usefulness of dispensary work. The league has been especially active in building asylums, open all the year, for children with tuberculous parents.—*La lutte antituberculeuse en Suede, Loevenhjelm (Sweden), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, p. 165.*

Antituberculosis Work in the Czecho-Slovak Army.—By a state regulation, most of the severe cases have been placed in military hospitals as near to their homes as possible. Patients probably curable are kept in military barracks chosen with reference to climatic suitability. The slightly affected tuberculous and those with latent disease are in convalescent camps at employments adapted to their condition. The treatment of men at home is limited as far as possible and in principle it is confined to men whose sputum is free from bacilli. These are registered with the civil authorities and must be examined once a month by a physician who has been given a history, directions for treatment, and other useful information.—*Organisation de la lutte contre la tuberculose dans l'armée Tchéco-Slovaque, C. Franz (Czecho-Slovakia), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 182.*

The Struggle against Tuberculosis in Poland.—During the forty years before 1914 the immense struggle against tuberculosis resulted in extraordinary improvement of conditions which had been very desperate. In Warsaw, for example, the mortality fell from 50.3 per 10,000 in 1879 to 20.7 in 1912; in Cracow it fell from 78.9 in 1900 to 67.8 in 1907; and in Posen from 24.22 in 1879 to 15.87 in 1907. The war brought the mortality in Warsaw from 20.7 in 1912 up to 78.4 in 1917, and the last half of the year it reached 100 in every 1000. A fifth of the population died of tuberculosis, 70 per cent of the deaths being of persons between ten and forty years. Since 1917 notification has been made compulsory and an active campaign of education has been carried on. A few dispensaries and colonies have been established and measures for protecting children are emphasized.—*La lutte antituberculeuse en Pologne, Kwiatkovski (Poland), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 186.*

Organization of Tuberculosis Prophylaxis in Argentina.—The resources available for use in the prevention and cure of tuberculosis in the Argentine Republic are extremely meagre. A national league, founded in 1899, has been active in educational prophylaxis, and has succeeded in procuring some slight state assistance. Such extremely inadequate facilities as exist for diagnosis and treatment are mostly due to private benefactions.—*L'organisation de la prophylaxie de la tuberculose dans la République Argentine, G. A. Alfaro and P. J. Hardoy (Argentina), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, 1921, p. 174.*

The Struggle against Tuberculosis in Chile.—Measures against tuberculosis in Chile are in the hands of two associations, a league which is occupied mainly with conducting seaside preventoriums for children and an association of women which

carries on tuberculosis dispensaries.—*La lutte antituberculeuse au Chili, O. Fontecilla (Chile), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 179.*

The Struggle against Tuberculosis in Japan.—A law of 1914 was followed in 1919 by a second law which made important extensions to the provisions of the first. All cities of more than 50,000 inhabitants were obliged by the law to build sanatoriums and to hospitalize all of the tuberculous poor. When the support of a family was interned the municipality was obliged to provide for its members. Municipalities received power to demolish unhealthful dwellings and to build new ones; they can forbid the carrying on of trades and industries deemed unhealthy. The national treasury can appropriate, in case of need, sums ranging from one-sixth to one-half of the costs incurred by the cities. The law seems to be the most thoroughgoing yet promulgated. Under its operation several sanatoriums have been built during the past year. There are also in Japan a number of sanatoriums conducted by the Red Cross and by an imperial foundation for charity. Statistics for the past two years show a decrease in mortality from tuberculosis, which had been greatly increasing in Japan during the past thirty years.—*La lutte contre la tuberculose au Japon, S. Ujihara (Japan), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 177.*

Antituberculosis Work in New South Wales.—Only four antituberculosis dispensaries exist in New South Wales which has a population of three million. But for the scarcity of physicians caused by the war many more would now be in operation. The dispensaries classify cases for treatment into ambulatory patients, patients to be treated at home under dispensary supervision, sanatorium patients, curable hospital patients, and incurable hospital patients. The dispensaries also supervise arrested cases after sanatorium treatment and incurables who refuse hospital treatment.—*La lutte antituberculeuse dans la Nouvelle-Galles du Sud, D. Luke (New South Wales), Conférence internationale contre la tuberculose, Paris, October 17–21, 1920, Masson et Cie, Paris, 1921, p. 189.*

Specific Prophylaxis of Tuberculosis.—Methods have been worked out for the specific immunization of the newly born by utilizing the transmission of antibodies through the placental circulation and by the milk after prophylactic inoculation of women and cows. Inoculation should be initiated at the third month of gravidity and terminated six weeks before delivery. The milk of inoculated wet nurses or cows may protect children. The absorption of antibodies from the milk is promoted by removal of the casein. Immune milk or whey may be given subcutaneously.—*Über die specifische Bekämpfung der Tuberkulose, Leitsätze, A. Strubell, Berl. klin. Wchnschr., October 25, 1920, lvii, 1021.*

Petruschky's Prophylaxis.—The value of Petruschky's prophylactic tuberculin inunction experiments conducted in Hela are questioned.—*Bemerkungen zu dem Sanierungsversuch von Petruschky in Hela, E. Effler, Ztschr. f. Tuberk., April 20, 1920, xxxii, 11.*

Antigenic Action of Friedmann's Vaccine.—Fourteen nursing children were treated with Friedmann's vaccine and tested for specific allergy. None gave a positive cutaneous or intracutaneous tuberculin test to O.T. at different intervals. In four children with negative cutaneous or intracutaneous tests before vaccination and positive cutaneous test eight days after, the intracutaneous test was negative eight days and seven weeks later. In these cases there was no infiltration from the vaccination, but in 8 of the 10 other children it existed for some time, thus permitting, according to Friedmann, the formation of antibodies. In 9 of the latter 10 cases the intracutaneous test to O.T. (1:1,000 and 1:10,000) was negative after two weeks, and in one case a slight reddening occurred on the first day (1:1,000), disappearing completely on the second day. One child, tested two months after vaccination, was negative. Eight were tested after three months, of which 6 were negative; 2 showed a pseudoreaction disappearing after two days; and one was lost track of and was not tested. Seven months after vaccination, 9 children were again tested, and 5 were negative to 1:10,000 and 4 to 1:1,000 O.T. intracutaneously (2 gave a pseudoreaction which could be reproduced with saline solution in the same and other children).—*Über die antigene Wirkung der Friedmann-Bazillen, F. Loebenstein, Berl. klin. Wchnschr., June 6, 1921, lviii, 605.*

Râles in the Prognosis of Pulmonary Tuberculosis.—An analysis of 1,000 consecutive admissions to the Trudeau Sanatorium between 1907 and 1913 leads to the following conclusions: 1. Cases in which no

râles were found, either on admission or on discharge examination, show the highest percentage of "cures." 2. Those patients who entered the institution with râles but who lost them during their stay form nearly as favorable a group as those showing no râles at any time. 3. In patients who entered the institution without râles but who developed them during treatment, the prognosis is much more grave than in either of the two above mentioned groups. 4. In spite of the greater frequency and the more common findings of the tubercle bacilli in right upper lesions as contrasted with left upper, the prognosis is considerably more favorable in the former class of patients. 5. Basal râles should not be diagnosed as nontuberculous too lightly, for in nearly 50 per cent in this series, tubercle bacilli were found in the sputum, and nearly 40 per cent of these developed apical râles during their stay in the sanatorium. 6. The prognosis among cases in which the râles were limited to one or both bases was not more grave than in those patients with râles over one or both upper lobes.—*Presence, Absence and Location of Râles in the Prognosis of Pulmonary Tuberculosis, F. B. Trudeau, J. A. M. A., October 22, 1921, lxxvii, 1326.*

INDEX OF ABSTRACTS OF TUBERCULOSIS

Aaron, C. D. Immunization by nonvirulent and nontoxic living tubercle bacilli, 39
Abdominal tuberculosis in children, 179
—— ——, Unusual cases of, 158
Abnormal environmental conditions, The course of phthisis under present, 176
Abscesses, Nontuberculous cold, 115
Accidents, industrial, Tuberculosis after, 153
Accredited herd plan and the practitioner, 169
—— herds, Tuberculosis-free, 15
Acid-fast bacilli, low virulent tubercle bacilli, turtle and other, Antigenic property of, 155
—— bacteria, Effect of fats on, 208
Acid-resisting bacteria, Chemotherapy with, 78
Ackley, C. Eradication of bovine tuberculosis, 15
Actinometer, Fürstenau's, Light therapeutic studies with, 34
Active pulmonary tuberculosis, Diagnosis of, 21
—— —— ——, Involvement of genitourinary tract in, 112
—— tuberculosis, Auto-urine test for, 107
Activity, The determination of, according to Wildbolz, 25
——, Tuberculin in determining, 188
Adams, A. Heredity in tuberculosis, 47
Adamson, W. W. Tuberculosis of myocardium, 62
Adenitis, tuberculous, Radium treatment of, 35
——, ——, Treatment of, 166
——, ——, —— ——, by roentgen rays and radium, 166
Adenopathy, tracheobranchial, Diagnosis and significance of, 69
Adhesions, Cauterization of, in pneumothorax, 121
—— impeding therapeutic pneumothorax, Severing, 167
Adnexa, Tuberculosis of the, 29
Adult consumptives, Tuberculous meningitis in, 111
—— tuberculosis in Czecho-Slovakia, Clinical diagnosis of, 218
—— ——, Relation of childhood tuberculous infection to, 176
Adults, Apical respiratory insufficiency and the diagnosis of pulmonary tuberculosis in, 57
——, Tuberculous meningitis in, 160
——, —— —— ——, The symptoms of, 114
Afebrile tuberculosis, grave, Metabolism in, 53
After-care committee, Work of an, 175
Aged, Pulmonary tuberculosis in the, 144
——, Tuberculosis antibodies in the, 53
Agglutination reaction in tuberculous infection of children, 222
——, Serum, of tubercle bacillus, 222
Aid in early diagnosis, Albumin in sputum, 154
Aigrot, G., and Gaillard, R. Gastric ulcer in the tuberculous, 110
Air dustiness, Control of, 16
—— passages, upper, Pseudotuberculosis due to disease of, 156
Albumin in sputum aid in early diagnosis, 154
——, lymphocytes and tubercle bacilli in the sputum, 92
Alcohol extracts of the tubercle bacillus as antigens, 143
Alfaro, G. A., and Hardoy, P. J. Organization of tuberculosis prophylaxis in Argentina, 240
——, ——. ——., —— Navarro, J. C. Scientific methods for obtaining tuberculosis morbidity and mortality statistics, 211
Alizarin test in infantile tuberculosis, The, 222
Allbutt, T. C. By-products of the tuberculosis movement, 174
Allergy or anergy, 31

Allison, N. Bone tuberculosis, 127
Allison, R. G. Types of pulmonary tuberculosis under the X-rays, 68
Alpine health resorts for tuberculous patients, 229
Alport, A. C. Albumin in sputum aid in diagnosis, 154
Alps, Heliotherapy in the, 102
Als, E. Treatment of hemoptysis, 79
Ambard's coefficient in pulmonary tuberculosis, 186
Amino acids, Effect of, on the growth of tubercle bacilli, 20
Anatomic forms of pulmonary tuberculosis, The, 180
—— investigations of tuberculosis in childhood, 52
Ancestors, Prognosis and antecedent tuberculosis of, or patients themselves, 99
Anergy, Allergy or, 31
Anesthesia, Nitrous oxide-oxygen, in tuberculous animals, 86
Animals, tuberculous, Nitrous oxide-oxygen anesthesia in, 86
Anorectal fistula, nontuberculous, resembling the tuberculous variety, 226
Antagonism between different parts of the spectrum, 122
Antecedent tuberculosis of ancestors or patients themselves, Prognosis and, 99
Anterior vaginal wall, Tuberculosis of the, 160
Antibodies, Humoral, in tuberculosis, 182
——, Tuberculosis, in the aged, 53
Antigen, Besredka, Specificity of the, 143
Antigenic action of Friedmann's vaccine, 241
—— property of low virulent tubercle bacilli, turtle and other acid-fast bacilli, 155
Antigens, Alcohol extracts of the tubercle bacillus as, 143
——, partial (Deycke-Much), Treatment of tuberculosis with, 206
——, ——, The prognostic significance of the cutaneous reaction to old tuberculin and to, in tuberculosis, 209
——, ——, —— treatment of grave cases of pulmonary tuberculosis with, 38
——, ——, Treatment of pulmonary tuberculosis with, 103
Antigens, the Deycke-Much partial, The leucocytes during the treatment of tuberculosis with, 206
Antituberculosis campaign in Denmark, The, 239
—— work in Greece, 239
—— —— —— New South Wales, 241
—— —— —— Rumania, 238
—— —— —— the Czecho-Slovak army, 240
Apex, hilum and lower lobe lesions of tuberculosis in childhood, 89
——, tuberculous, Tenderness over, 57
Apical respiratory insufficiency and the diagnosis of pulmonary tuberculosis in adults, 57
Apparatus, artificial pneumothorax, A simple, 75
Arc light, Treatment of laryngeal tuberculosis with the, 123
Argentina, tuberculosis prophylaxis in, Organization of, 240
Armstrong, D. B. Framingham demonstration and industrial medicine, 236
——, ——. ——. Health letters, 41
——, ——. ——. Tuberculosis control, 135
——, ——. ——., and Bartlett, P. C. Framingham community health and tuberculosis demonstration, 151
Arnould, E. Factors in the spread of the tubercle bacillus, 176
——, ——. Prognosis and antecedent tuberculosis of ancestors or patients themselves, 99
Arteriosclerosis, Tuberculosis and, 163
Arthritis, tuberculous, and osteomyelitis, treatment of, X-rays in the, 233
Artificial chemical light baths, Results of treatment of lupus vulgaris and surgical tuberculosis with, 197
—— light, X-ray and, Combined, treatment of local and pulmonary tuberculosis, 231
Artificial pneumothorax, 167
—— —— apparatus, A simple, 75
—— ——, Bilateral, 37
—— ——, complication of, A, 194
—— ——, Contraindications to the administration of, 229
—— ——, Diagnostic, 60
—— ——, Immune reactions with, 108
—— ——, Importance of exact measurement of intrapleural pressure in, 195

Artificial pneumothorax in pulmonary tuberculosis, 101
—— —— —— treatment of hemoptysis, 167,
—— ——, Oxygen or carbon dioxide for, 229
—— ——, pleural cavity in, Investigation of the, 229
—— ——, Pleural effusion on the healthy side in, 93
—— ——, Recovery of respiratory capacity after, 196
—— ——, Spontaneous pneumothorax complicating, 108
—— —— therapy, 194
—— —— treatment, Value of, 101
Artificial sunlight treatment of pulmonary tuberculosis, 231
—— —— —— —— tuberculosis in guinea pigs, 231
Association of tuberculous meningitis with meningococci and para meningococci, 97
Atypical tuberculosis with Mikulicz's syndrome, 160
Aureol lamp rays, Influence of, on immunity, 232
Auscultation in early diagnosis, Value of, 184
Ausgpurger, O. Intracutaneous tuberculin test in cattle, 149
Austgen, H. Scarlatinal rash after the use of quartz light, 51
Austria, Tuberculosis in, 4
Autoserum, Auto-urine and, biologic test for tuberculosis, 26
Auto-urine and autoserum biologic test for tuberculosis, 26
—— reaction, Wildbolz, Diagnostic value of the, 221
—— test for active tuberculosis, 107
Avian tubercle bacillus, The, 223
Axillary lymph node tuberculosis in pulmonary tuberculosis, 158

Babies, Tuberculinization of, 75
Bach, H. Light and climatic treatment of tuberculosis, 124
Bachmann, E. Scientific methods for obtaining tuberculosis morbidity and mortality statistics, 211
Bacilli, acid-fast, Antigenic property of low virulent tubercle bacilli, turtle and other, 155
Bacilli, tubercle, Albumin, lymphocytes and, in the sputum, 92
——, ——, Cold-blooded, and Friedmann's vaccine, 204
——, ——, Culture of, on egg yolk, 144
——, ——, Effect of amino acids on the growth of, 20
——, ——, Excretion of, in bile, 98
——, ——, in milk, Action of prolonged pasteurization on, 72
——, ——, —— the blood of tuberculous patients, 93
——, ——, —— —— sputum, The new concentration methods for examination for, 155
——, ——, Influence of organ extracts on, 207
——, ——, Isolation of, from sputum by Petroff's method, 224
——, ——, low virulent, turtle and other acid-fast bacilli, Antigenic property of, 155
——, ——, nonvirulent and nontoxic living, Immunization by, 39
——, ——, Properties of, attenuated by bile, 223
——, ——, Resistance of the caterpillar to, 53
——, ——, The detection of, by dark field illumination, 186
——, ——, —— disinfecting power of the solar rays upon, 50
——, turtle, Treatment of surgical tuberculosis with, 202
Bacillus, bovine, and man, The, 14
Bacillus, tubercle, Alcohol extracts of the, as antigens, 143
——, ——, as fat fungus, 19
——, ——, avian, The. 223
——, ——, Course of the, from sputum to child, 89
——, ——, Factors in the spread of the, 176
——, ——, Serum agglutination of, 222
——, ——, staining the, A new method of, 93
——, ——, The influence of chaulmoogra oil on the, 74
——, ——, types of, Significance of, 143
Bacmeister, A. X-ray treatment of pulmonary and intestinal tuberculosis, 123
Bacteria, acid-fast, Effect of fats on, 208
——, acid-resisting, Chemotherapy with, 78

Bacteria on coins, 217
Bacterial flora of tuberculous sputum, 20
Baensch, W. Tebelon in the treatment of surgical tuberculosis, 207
Baetzner, W. Case of gastric tuberculosis, 189
Baker, S. J., and Sobel, J. Open-air schools during 1919, 76
Balyeat, R. M. Diagnosis and significance of tracheobronchial adenopathy, 69
Barcza, A. V. Correct and incorrect application of Friedmann's remedy, 234
Bardswell, N. Diagnosis of pulmonary tuberculosis, 68
——, ——. The subcutaneous tuberculin test, 188
Barney, A. J. D. Genital tuberculosis in the male, 29
Barnhard, O. Heliotherapy of surgical tuberculosis and necessity of community sanatoria for such patients, 230
Barr, D. P., and McCann, W. S. Metabolism in tuberculosis, 53
Barthas. Association of tuberculous meningitis with menigococci and parameningococci, 97
Barthel, C., and Stenstrom, O. Action of prolonged pasteurization on tubercle bacilli in milk, 72
Bartlett, P. C., and Armstrong, D. B. Framingham community health and tuberculosis demonstration, 151
Bartschmid, J. The war and tuberculosis among the children of Munich, 178
Basal metabolism findings in chronic pulmonary tuberculosis and hyperthyroidism, Blood sugar and, 186
Basilar meningitis, An early diagnostic sign in, 60
Bass and Rieux, J. Complement fixation reaction in tuberculosis, 154
Baths, artificial chemical light, Results of treatment of lupus vulgaris and surgical tuberculosis with, 197
——, Universal light, in ophthalmology, 122
Bauereisen, A. Experimental research on primary tuberculosis of the female genital organs, 30
Beeler, R. C. Roentgen diagnosis of renal tuberculosis, 159
Begtrup-Hansen, J. Artificial pneumothorax in treatment of hemoptysis, 167
——, ——. Light treatment of pulmonary and laryngeal tuberculosis, 229
Beitzke, H. Relation of childhood tuberculous infection to adult tuberculosis, 176
Belgium, tuberculosis in, struggle against, The, 239
Beliefs regarding pulmonary tuberculosis, Misleading, 55
von Bergen, J. The disinfecting power of the solar rays upon tubercle bacilli, 50
Bergeret, Remilly, and Hartman. Tuberculosis of the adnexa, 29
Berghoff, R. S. Etiologic factors in pulmonary tuberculosis, 8
Bernard, L. Preservation of infants, 237
——, ——. Social prophylaxis against tuberculosis, 84
——, ——. War and social prophylaxis, 2
——, ——., and Debré, R. Infants of tuberculous mothers, 10
Berry, M. X-ray examination of the chest, 22
——, ——. X-ray treatment of tuberculous lymph nodes, 74
Beschorner. Enlightening the public, 1
Besredka, A. Culture of tubercle bacilli on egg yolk, 144
Besredka antigen, Specificity of the, 143
Bessunger. Treatment of lupus with iodine exposed to X-rays, 233
Bezançon, F. Value of auscultation in early diagnosis, 184
——, ——., and de Jong, S. I. Tuberculous hemorrhages, 189
Bier, A. Treatment of surgical tuberculosis by the practitioner, 202
Bilateral artificial pneumothorax, 37
Bile, Excretion of tubercle bacilli in, 98
——, Properties of tubercle bacilli attenuated by, 223
Binder, A. Tumor like tuberculosis of the heart, 62
Biologic test for tuberculosis, Auto-urine and autoserum, 26
Bircher, A. Conservative treatment of peritoneal tuberculosis with X-rays, 232
Bismuth mixtures, Lung mapping with, 141
Blackmore, F. J. C. Public tuberculosis service, 74

Bladder, Primary tuberculosis of the, 29
Blaivas, A. J. Complement fixation, 22
Blatt, M. L. The physical development of tuberculous children, 147
Blechschmidt, M., and Jacob, L. Treatment of tuberculosis with partial antigens, 206
Blegvad, N. R. Treatment of laryngeal tuberculosis, 231
——, ——. ——. Treatment of laryngeal tuberculosis with the arc light, 123
de Bloeme, J. L. Tuberculin treatment, 32
Blood corpuscles, red, in the miliary tubercles of the spleen, The presence of, 52
—— lipases in tuberculosis, 221
—— of tuberculous patients, Tubercle bacilli in the, 93
—— pressure in pulmonary tuberculosis, The, 142
——, Stability reaction of, in tuberculosis, 154
—— sugar and basal metabolism findings in chronic pulmonary tuberculosis and hyperthyroidism, 186
—— transfusion in pulmonary tuberculosis, 106
Blumgarten, A. S. Diagnosis of lung tumors, 227
Boas, E. P. Value of artificial pneumothorax treatment, 101
——, ——. ——., and Mann, H. The heart and tuberculosis, 126
Body temperature, Action of the visible light rays on the, 103
Boeri, G. Tuberculosis in soldiers, 18
Boerner, F., Jr. Tuberculosis of horses, 150
Boggs, R. H. Treatment of tuberculous adenitis by roentgen rays and radium, 166
Bolle, G. Chronic pulmonary tuberculosis with few symptoms, 56
Bone and joint disease, Tuberculous, 96
—— —— —— tubercle, Stigmata of predisposition to, 85
—— —— —— tuberculosis, Light treatment of, 230
—— lesions, obscure, Roentgenography of, 61
—— tuberculosis, 127
Bones and joints, tuberculosis of the, Treatment of, 105
Boquet, A., and Nègre, L. Alcohol extracts of the tubercle bacillus as antigens, 143
——, ——., —— ——, ——. Tuberculosis in small rodents, 99
——, ——., Nègre, L., and Calmette, A. Properties of tubercle bacilli attenuated by bile, 223
Borgogno, M. Spengler's immune bodies, 31
Bosch, E. Diagnostic value of the Wildbolz auto-urine reaction, 221
Boswell, H. Fundamental factors in the control of tuberculosis, 152
Botryomycosis, Pulmonary, 99
Bourne, G. Complete pneumothorax in an infant, 146
Bovine and human tuberculosis, 169
—— bacillus and man, The, 14
—— tuberculosis, Complement fixation in, 98
—— ——, Eradication of, 15
—— ——, No compromise with, 168
Brady, L. Tuberculosis of the kidney in women, 70
Brandenstein. Treatment of surgical tuberculosis with turtle bacilli, 202
Breiger, S. The light treatment of venereal diseases, 197
Briggs, W. T. Renal tuberculosis, 113
Broca, A. Influence of trauma on surgical tuberculosis, 86
——, ——. Surgical tuberculosis, 63
——, ——. Treatment of tuberculous adenitis, 166
——, ——. Tuberculosis after industrial accidents, 153
Bronchial lymph nodes, Nontuberculous enlargement of the, 126
Bronchiectasis and accessory sinus disease, 130
Bronchopulmonary mycosis, Tropical, 130
—— spirochetosis, 192
Brown-Sequard's syndrome in Pott's disease, 63
Bruner, S. E. Tuberculosis eradication among cattle in Pennsylvania, 98
Building tuberculosis sanatoria, 136
Burnand, M. R. Investigation of the pleural cavity in artificial pneumothorax, 229
——, ——. ——. Spontaneous pneumothorax complicating artificial pneumothorax, 108

Burnand, R. Latent tuberculosis, 180
——, ——. Treatment of tuberculosis, 163
Bushke, A. Treatment of lupus vulgaris with Friedmann's vaccine, 205

Calcium and tuberculosis in rabbits, 102
—— in pulmonary tuberculosis, 102
Calculus, impacted pelvic, Renal tuberculosis and, 158
——, Repeated hemoptysis caused by a, 94
Calmette, A. Diffusion of tuberculosis throughout the world, 211
——, ——. Prophylaxis in tuberculosis, 14
——, ——. Vaccination of cattle, 179
——, ——., Boquet, A., and Negre, L. Properties of tubercle bacilli attenuated by bile, 223
Campaign against tuberculosis in Pennsylvania, 84
—— —— —— —— Wales, 3
—— —— ——, The, 66
——, Coöperative eradication, and the practitioner, 15
——, The public health nurse in the, 138
——, tuberculosis, Coöperative, 42
——, ——, Knights of Columbus in, 106
Camphor and emetine in the treatment of hemoptysis, 79
Canada, Tuberculosis in, 44
Cancer of the lung, Tuberculosis and, 62
Cantacuzène. Antituberculosis work in Rumania, 238
Capillary microscope, The intracutaneous tuberculin injection as revealed by the, 142
Capo, A. E. Essentials in tuberculosis prophylaxis, 237
——, ——. ——. Scientific methods for obtaining tuberculosis morbidity and mortality statistics, 211
Carbon dioxide, Oxygen or, for initial artificial pneumothorax, 229
Care of moderately advanced pulmonary tuberculosis, The 37
—— —— tuberculous cripples, 203
——, Sanatorium, of tuberculous soldiers, 152
Carpi, U. Immune reactions with artificial pneumothorax, 108
Carroll, W. E., and Gibson, C. B. Autourine test for active tuberculosis, 107
Case of tuberculous mesenteric nodes, A, 127
—— —— urological tuberculosis, 113
Caseous pneumonia and proliferative phthisis, Differential diagnosis of, 185
Cases of abdominal tuberculosis, Unusual, 158
—— —— surgical thoracic tuberculosis, Two, 121
Catalonia, tuberculosis in, Present efforts against, 238
Caterpillar, Resistance of the, to tubercle bacilli, 53
Catheterization in tuberculous kidney, Rationale of diagnostic, 190
Catholic nursing orders, Tuberculosis among, 214
Cattle. Combination tuberculin tests in, 149
——, Intracutaneous tuberculin test in, 149
——, Skin tuberculosis in, 170
——, Tuberculin test of, and tuberculosis control, 149
—— tuberculosis, Control of, 116
——, Tuberculosis eradication among, in Pennsylvania, 98
——, Vaccination of, 179
Causes of death in United States registration area, 1919, 4
—— —— disease, Tuberculous toxins as, 216
Caussader, G., and Doumer, E. Tuberculous edematous infiltration of the lung, 158
Cauterization of adhesions in pneumothorax, 121
Cavities, pulmonary, in tuberculosis, Certain symptomatological aspects of, 25
Cawadias. Antituberculosis work in Greece, 239
Cell, The action of ultraviolet rays on the, 122
Census, The first, in Vienna, Statistics on infant and tuberculosis mortality during the eighteenth century, 43
Cerebrospinal fluid, Chemical examination of, in the diagnosis of tuberculous meningitis, 61
Cerium salts in the treatment of chronic tuberculosis, 101
Chaffin, G. L., and Whittemore W. Extrapleural thoracotomy, 203
Chaulmoogra oil in leprosy and tuberculosis, 168

Chaulmoogra oil in the treatment of tuberculosis, 124
—— ——, The influence of, on the tubercle bacillus, 74
Cheinisse, L. Camphor and emetine in the treatment of hemoptysis, 79
——, ——. The internal use of iodine, 32
——, ——. Tuberculosis mortality in Vienna before and after the war, 81
Chemical examination of the cerebrospinal fluid in the diagnosis of tuberculous meningitis, 61
—— light baths, artificial, Results of treatment of lupus vulgaris and surgical tuberculosis with, 197
Chemotherapy, Krysolgan, 234
—— of experimental tuberculosis, Mercury compounds in the, 33
—— —— tuberculosis with collargol and colloidal copper, 235
—— with acid-resisting bacteria, 78
Chest wounds and pulmonary tuberculosis, 49
——, X-ray examination of the, 22, 187
Child, Course of the tubercle bacillus from sputum to, 89
——, Tuberculous infection of a, 215
Childhood, advanced, Danger of tuberculous infection in, 215
——, Apex, hilum and lower lobe lesions of tuberculosis in, 89
——, Pulmonary tuberculosis in, 10
——, tuberculosis in, Anatomic investigations of, 52
——, —— ——, Diagnosis of, 219
—— tuberculous infection, Relation of, to adult tuberculosis, 176
Children, Abdominal tuberculosis in, 179
——, Chronic tuberculous hilum pneumonia in, 90
——, Hospital school for surgical tuberculosis in, 76
——, infants and, Roentgen ray and tuberculosis in, 108
—— of Munich, The war and tuberculosis among the, 178
—— —— tuberculous parents during the war, The fate of, 215
——, surgical tuberculosis in, The treatment of, by venous hyperemia, 148
——, Tuberculin treatment of, 30
Children, Tuberculosis in, 108
——, —— ——, Complement fixation for, 90
——, —— of, 89
——, —— —— the tracheobronchial glands in, Early diagnosis of, 91
——, tuberculous infants and, Epituberculous infiltration of the lungs in, 146
——, —— infection of, Agglutination reaction in, 222
——, Tuberculous, sleep in parks, 148
——, ——, The physical development of, 147
——, X-ray treatment in, The results of, 148
——, young, Tuberculosis in infants and, 88
Chile, tuberculosis in, struggle against, The, 240
Chondroturia in pulmonary tuberculosis, 142
Chotzen, T., and Kuznitsky, E. Exposure of the cornea to ultraviolet light, 198
Chronic gas poisoning and pulmonary tuberculosis, 11
—— nontuberculous lung disease, 129
—— pulmonary tuberculosis and hyperthyroidism, Blood sugar and basal metabolism findings in, 186
—— —— —— with few symptoms, 56
—— tonsillitis as a source of mixed infection in pulmonary tuberculosis, 183
—— tuberculosis of the kidney, 70
—— ——, treatment of, Cerium salts in the, 101
—— tuberculous hilum pneumonia in children, 90
—— —— pericarditis, Pleuropulmonary tuberculosis and, 95
Cities, large U. S., Pulmonary tuberculosis mortality of, 134
Clark, Janet H. Action of light on the leucocytes, 51
Classification of pulmonary tuberculous lesions, A prognostic, 209
—— —— râles, 219
—— —— tuberculosis, 40
Cleveland health survey, 44
Climate and weight in tuberculosis, 193
—— in tuberculosis, 104
Climatic treatment of tuberculosis, Light and, 124
Clinical diagnosis of adult tuberculosis in Czecho-Slovakia, 218
—— methods, laboratory and, in tuberculosis, Relative value of, 218

Clinical observations on Hodgkin's disease, 227
Cohen, S. A., and Dunn, C. H. Diagnosis and prognosis of tuberculosis in infancy, 87
Coins, Bacteria on, 217
Cold abscesses, Nontuberculous, 115
——, Pleurisy due to, 27
Cold-blooded tubercle bacilli and Friedmann's vaccine, 204
Collargol, Chemotherapy of tuberculosis with, and colloidal copper, 235
Collins, F. G. Tuberculosis recreation centres, 138
Colloidal copper, Chemotherapy of tuberculosis with collargol and, 235
Combination tuberculin tests in cattle, 149
Community sanatoria, Heliotherapy of surgical tuberculosis and necessity of, for such patients, 230
Complement fixation, 22
—— —— for tuberculosis in children, 90
—— —— in bovine tuberculosis, 98
—— —— —— surgical tuberculosis, 154
—— —— reaction in tuberculosis, 154
Complete pneumothorax in an infant, 146
Complication of artificial pneumothorax, A, 194
Complications, Nontuberculous, of pulmonary tuberculosis, 26
Concentration methods for examination of tubercle bacilli in the sputum, The new, 155
Conceptions of scrofula, The old and new, 94
Conglomerate tuberculosis of the heart, 62
Congress of the German Society for Internal Medicine, 130
Conquest of tuberculosis, The, 45
Constitution and tuberculosis, Studies in immune biology, disposition and, 117
Consumptive, The soul of the, 1
Consumptives, adult, Tuberculous meningitis in, 111
——, Occupations for, 77
——, Striae distensae in, 142
Contact, Relation of, to development of tuberculosis, 8
Contagious, Is tuberculosis, 9
Contagiousness of pulmonary tuberculosis in infants, 215
Contraindications to the administration of artificial pneumothorax, 229
Control and treatment of tuberculosis in Great Britain, 172
——, Dispensary, of tuberculosis, 136
—— of air dustiness, 16
—— —— cattle tuberculosis, 116
—— —— the factory dust problem, 17
—— —— tuberculosis, Fundamental factors in the, 152
—— —— ——, The, 174
——, Tuberculosis, 135
——, ——, Pioneer work in, 16
——, ——, Tuberculin test of cattle and, 149
Controlling tuberculosis, 41
Cooke, J. V. Complement fixation for tuberculosis in children, 90
Coöperative tuberculosis campaign, 42
Copper, colloidal, collargol and, Chemotheraphy of tuberculosis with, 235
Cornea, Exposure of the, to ultraviolet light, 198
Corper, H. J., and Rensch, O. B. Mustard gas and experimental tuberculosis, 73
—— ——. ——., Gauss, H., and Rensch, O. B., Tuberculosis and experimental endothelial leucocytosis, 100.
Cost, L. Giant cell formation, 67
Couland, E. Tuberculin reaction during the menses, 93
County councils, Sanatorium treatment under, 137
Courcout, A., and Labesse, P. Tuberculosis in old age, 179
Courmont, P. Serum agglutination of tubercle bacillus, 222
Course of phthisis under present abnormal environmental conditions, The, 176
—— —— the tubercle bacillus from sputum to child, 89
Courses in tuberculosis, 67
Cozzolino, O. Contagiousness of pulmonary tuberculosis in infants, 215
Cramer, H. Tuberculosis and arteriosclerosis, 163
Creatinin in pulmonary tuberculosis, 116
Cripples, tuberculous, Care of, 203
Crockett. Artificial pneumothorax in pulmonary tuberculosis, 101

Crockett, J. Tuberculin in epilepsy, 124
——, ——. Value of inspection in diagnosis of tuberculosis, 21
Crull, E. Value of finding the early case of tuberculosis, 183.
Cullen, E. K. Tuberculosis of the anterior vaginal wall, 160
Culpepper, W. S., and Ableson, M. Chaulmoogra oil in the treatment of tuberculosis, 124
Culture of tubercle bacilli on egg yolk, 144
Cummins, S. L. Medical education in tuberculosis, 174
——, ——. ——. Racial differences in tuberculosis, 18
Cumston, C. G. Surgical tuberculosis in infants, 88
Curability of tuberculous meningitis, 80
Cure in pulmonary tuberculosis, Test of, 209
—— or preventive of tuberculosis, 132
Cureton, E. The first sanatorium, 175
Cutaneous reaction to old tuberculin and to partial antigens in tuberculosis, The prognostic significance of the, 209
Czecho-Slovak army, Antituberculosis work in the, 240
Czecho-Slovakia, Clinical diagnosis of adult tuberculosis in, 218

Daco. Pleuropulmonary tuberculosis and chronic tuberculous pericarditis, 95
Danger of tuberculous infection in advanced childhood, 215
Dark field illumination, The detection of tubercle bacilli by, 186
Dávila, Rensole, F., and Fuentes, S. Vaccine treatment of tuberculosis, 75
Davis, L. C., Jager, R., and Kolmer, J. A. The influence of chaulmoogra oil on the tubercle bacillus, 74
Death, Causes of, in United States registration area, 1919, 4
—— rate, Low tuberculosis, for November, 1920, 7
—— ——, Tuberculosis, still declining, 173
—— rates, Deaths and, from pulmonary tuberculosis in New York City and State, 4, 82
Deaths and death rates from pulmonary tuberculosis in New York City and State, 4, 82
Deaths, New York City, from tuberculosis since 1898, 133
Debré, R., and Bernard, L. Infants of tuberculous mothers, 10
Decalcification, Tuberculosis and, 116
Defense against tuberculosis, The nose as a, 216
Delayed healing, Tuberculous infection and, 163
Delong, J., and Dumarest, F. Recovery of respiratory capacity after artificial pneumothorax, 196
Dendinger, W. C. Accredited herd plan and the practitioner, 169
Denmark, antituberculosis campaign in, The, 239
——, Mortality from tuberculosis in, 82
Dental caries and tuberculosis, 94
D'Espine, A. Treatment of tuberculosis at the seashore, 78
Detection of tubercle bacilli by dark field illumination, The, 186
Detre, G., Mezmoulins, A., and Méry, H. Radiologic diagnosis of pulmonary and glandular tuberculosis in children, 90
Deusch, G. Influenza and pulmonary tuberculosis, 216
Development of tuberculosis, Relation of contact to, 8
—— —— ——, The influence of X-rays on the, 122
——, physical, of tuberculous children, The, 147
Dewees, A. M. Campaign against tuberculosis in Pennsylvania, 84
De Witt, L. M. Mercury compounds in the chemotherapy of experimental tuberculosis, 33
Dextrocardia due to right-sided pleuropulmonary lesion, 95
Deycke-Much partial antigens, The leucocytes during the treatment of tuberculosis with the, 206
Diagnosis and prognosis of tuberculosis in infancy, 87
—— —— significance of tracheobronchial adenopathy, 69
——, Clinical, of adult tuberculosis in Czecho-Slovakia, 218
Diagnosis, Differential, of caseous pneumonia and proliferative phthisis, 185

Diagnosis, differential, of early tuberculous joints, 21, 191
——, ——, —— renal tuberculosis, 159
——, ——, —— tuberculosis, 22
Diagnosis, early, Albumin in sputum aid in, 154
——, ——, of pulmonary tuberculosis, 184
——, ——, —— tuberculosis of the tracheobronchial glands in children, 91
——, ——, Quasi-continuous temperature records in, 91
——, ——, Symptoms vs. physical signs in, 56
——, ——, Value of auscultation in, 184
Diagnosis of active pulmonary tuberculosis, 21
—— —— early tuberculosis, pupil in the, Provoked inequality of the, 219
—— —— lung tumors, 227
—— —— pulmonary tuberculosis, 68
—— —— —— ——, Apical respiratory insufficiency and the, in adults, 57
—— —— renal tuberculosis, laboratory, The, 190
—— —— tuberculosis in childhood, 219
—— —— ——, The, 139
—— —— ——, Value of inspection in, 21
—— —— tuberculous meningitis, Chemical examination of the cerebrospinal fluid in the, 61
Diagnosis, Radiologic, of pulmonary and glandular tuberculosis in children, 90
——, Roentgen of renal tuberculosis, 159
——, X-ray in, 92
——, ——, —— phthisis, 23
Diagnostic artificial pneumothorax, 60
—— catheterization in tuberculous kidney, Rationale of, 190
—— methods of bacillary infection, 222
—— sign in basilar meningitis, An early, 60
—— tuberculin, A, 187
—— —— injunction, 188
—— value of intracutaneous injection of patient's own urine, 60
—— —— —— Pirquet test, 220
—— —— —— the Wildbolz auto-urine reaction, 221
—— —— —— tuberculin in surgical tuberculosis, 110
—— —— —— X-ray examination, 68
Dickinson, G. K. Is tuberculosis contagious, 9
Diener, J. Chronic tuberculosis of the kidney, 70
Diet, Metabolism and, in tuberculosis, 54
Dietl, K. Chondroturia in pulmonary tuberculosis, 142
Different parts of the spectrum, Antagonism between, 122
Differential diagnosis of caseous pneumonia and proliferative phthisis, 185
—— —— —— early tuberculous joints, 21, 191
—— —— —— renal tuberculosis, 159
—— —— —— tuberculosis, 22
Differentiating exudates from transudates, Sochanski's method of, 186
Diffusion of tuberculosis throughout the world, 211
Diphtheria carriers, throats of, Sterilization of the, with ultraviolet rays, 198
Disease of the upper air passages, Pseudotuberculosis due to, 156
——, pulmonary, Paratuberculous, 224
——, Tuberculous toxins as causes of, 216
Disinfecting power of the solar rays upon tubercle bacilli, The, 50
Disinfection of tuberculous sputum, 155
Dispensary control of tuberculosis, 136
——, sanatorium and the tuberculosis officer, 43
Disposition and constitution and tuberculosis, Studies in immune biology, 117
Distaso, A. Tubercle bacilli in the blood of tuberculous patients, 93
Doermer, W. Conglomerate tuberculosis of the heart, 62
Donnelly, J. D., and Gittings, J. C. Statistics of the Pirquet reaction, 59
Donnelly, L. C. Sterilization of the throats of diphtheria carriers with ultraviolet rays, 198
Dosage, Light, 51
Double light therapy, 34
Doumer, E., and Caussader, G. Tuberculous edematous infiltration of the lung, 158
Doyle, J. B., and Lemon, W. S. Clinical observations on Hodgkin's disease, 227
Driessen, L. F. Genital tuberculosis, 29

Drolet, G. J. New York City Deaths from tuberculosis since 1898, 133
Drooping shoulder sign, The, 58
Drouin, H. Cerium salts in the treatment of chronic tuberculosis, 101
Dumarest, F., and Delong, J. Recovery of respiratory capacity after artificial pneumothorax, 196
——, ——., —— Pavodi, F. Pathology of the pleural endothelium, 181
Duncan, E. A. Smoking in pulmonary tuberculosis, 153
Dunham fan in roentgenograms, The, 24
Dunham, H. K. X-ray examination of the chest, 187
Dunn, C. H., and Cohen, S. A. Diagnosis and prognosis of tuberculosis in infancy, 87
Dünner, L., and Horovitz, A. Inhibition of the tuberculin reaction by serums, transudates and exudates, 205
Durgin, D. D. Tuberculosis problems in state hospital practice, 41
Durupt. A new method of staining the tubercle bacillus, 93
Dust problem, factory, Control of the, 17
—— ——, Industrial tuberculosis and the factory, 47
Dustiness, air, Control of, 16
Dworetzky, J. Laryngopulmonary tuberculosis, 125
Dyspepsia from Pott's disease, 110

Eagleton, A. J. Standardization of tuberculin, 72
Ear, middle, Tuberculosis of the, 157
——, Tuberculosis of the, 26
Early case of tuberculosis, Value of finding the, 183
Early diagnosis, Albumin in sputum aid in, 154
—— —— of pulmonary tuberculosis, 184
—— —— —— tuberculosis of the tracheobronchial glands in children, 91
—— ——, Quasi-continuous temperature records in, 91
—— ——, Symptoms vs. physical diagnosis in, 56
—— ——, Value of auscultation in, 184
Early diagnostic sign in basilar meningitis, An, 60
Early pulmonary tuberculosis, The heart in, 195
—— —— ——, Treatment of, 37
—— sign of tuberculous lesion, Tenderness in muscles as, beneath, 25
—— tuberculosis, diagnosis of, Provoked inequality of the pupil in the, 219
—— tuberculous joints, Differential diagnosis of, 21, 191
East, Public Health Service forced to transfer tuberculosis patients to the, 4
Eastman, D. K. Combination tuberculin tests in cattle, 149
Edel, K. Immunity to tuberculosis, 16
Edematous infiltration, Tuberculous, of the lung, 158
Education in tuberculosis, Medical, 174
Educational training in tuberculosis, 42
Effler, E. Petruschky's prophylaxis, 241
Effusion, Pleural, on the healthy side in artificial pneumothorax, 93
——, pleurisy with, Tuberculin in the treatment of, 206
Effusions, pleural, in therapeutic pneumothorax, Management of, 121
Egg yolk, Culture of tubercle bacilli on, 144
Ehrlich's side chain theory, Friedmann's remedy in the light of, 234
Eighteenth century, Statistics on infant and tuberculosis mortality during the: the first census in Vienna, 43
Eiken, H. Action of small doses of X-rays, 233
Eldridge, N., and Raphael, T. Creatinin in pulmonary tuberculosis, 116
Eliasberg and Schiff. Diagnostic value of intracutaneous injection of patient's own urine, 60
Eliasberg, H., and Neuland, W. Epituberculous infiltration of the lungs in tuberculous infants and children, 146
Ely, L. W. Operation for tuberculosis of the wrist, 32
Emetine, Camphor and, in the treatment of hemoptysis, 79
Empyema complicating pulmonary tuberculosis, pathology and treatment of, The, 192
Endothelial leucocytosis, experimental, Tuberculosis and, 100

Endothelium in experimental miliary tuberculosis, The, 52
——, pleural, Pathology of the, 181
Engel, S. Paratuberculous pulmonary disease, 224
Enlargement of the bronchial lymph nodes, Nontuberculous, 126
Enlightening the public, 1
Environmental conditions, abnormal, The course of phthisis under present, 176
Eosin sensitized mice, The action of ultraviolet light on, 198
Epidemiology of tuberculosis, 130
Epilepsy, Tuberculin in, 124
Epituberculous infiltration of the lungs in tuberculous infants and children, 146
Eradication campaign, Coöperative, and the practitioner, 15
—— of bovine tuberculosis, 15
——, Tuberculosis, among cattle in Pennsylvania, 98
Ernest, L. B. No compromise with bovine tuberculosis, 168
Ernst, N., and Reyn, A. Results of treatment of lupus vulgaris and surgical tuberculosis with artificial chemical light baths, 197
Erythema nodosum and tuberculosis, 64
Erythrocyte volume in tuberculosis, The, 182
Etiologic factors in pulmonary tuberculosis, 8
Evans, D. W. Campaign against tuberculosis in Wales, 3
Examination, Chemical, of the cerebrospinal fluid in the diagnosis of tuberculous meningitis, 61
—— for tubercle bacilli in the sputum, The new concentration methods for, 155
——, X-ray, Diagnostic value of, 68
——, ——, of the chest, 22, 187
Excretion of tubercle bacilli in bile, 98
Experimental contribution on the relationship between phlyctenulae and tuberculosis, 176
—— endothelial leucocytosis, Tuberculosis and, 100
—— immunity effects of Friedmann's vaccine, 234
—— miliary tuberculosis, The endothelium in, 52
Experimental research on primary tuberculosis of the female genital organs, 30
—— tuberculosis, Mercury compounds in the chemotherapy of, 33
—— ——, Mustard gas and, 73
—— tuberculous infections, Leucocytic response in, 73
External stigmata, Presumption of tuberculosis from, 58
Extracts, Alcohol, of the tubercle bacillus as antigens, 143
——, organ, Influence of, on tubercle bacilli, 207
Extrapleural thoracotomy, 203
Exudates, serums, transudates and, Inhibition of the tuberculin reaction by, 205
——, Sochanski's method of differentiating, from transudates, 186
Exudative pleurisy, Therapeutic pneumothorax in, 37

Factors in the control of tuberculosis, Fundamental, 152
—— —— —— increased incidence of pulmonary tuberculosis, Housing conditions vs. food as, 215
Factory dust problem, Control of the, 17
—— —— ——, Industrial tuberculosis and the, 47
Fan, The Dunham, in roentgenograms, 24
Fargin-Fayolle, P. Dental caries and tuberculosis, 94
Fat fungus, Tubercle bacillus as, 19
Fatigue as a test of the tuberculous, 140
Fats, Effect of, on acid-fast bacteria, 208
Feeblemindedness and tuberculosis, 64
Feldman, G. Bilateral artificial pneumothorax, 37
Female genital organs, Experimental research on primary tuberculosis of the, 30
Fever in tuberculosis, 188
——, slight, in the tuberculous, Significance of, 59
Field, C. E. Radium treatment of tuberculous adenitis, 35
Fight against tuberculosis in large communities, 40
Film for tuberculosis propaganda, 41
Finding the early case of tuberculosis, Value of, 183

Finkelstein, H., and Philips, H. B. X-rays in the treatment of tuberculous arthritis and osteomyelitis, 233
First sanatorium, The, 175
Fishberg, M. Diagnostic artificial pneumothorax, 60
——, ——. Pulmonary sequellae of influenza, 72
Fistula, anorectal, Nontuberculous, resembling the tuberculous variety, 226
Fixation, Complement, 22
——, ——, for tuberculosis in children, 90
——, ——, in bovine tuberculosis, 98
——, ——, —— surgical tuberculosis, 154
——, ——, reaction in tuberculosis, 154
Flack, R. E., and von Ruck, K. Vaccination against tuberculosis, 165
Fleck, J. X-ray treatment of tuberculous laryngitis, 102
Flick, L. F. Pregnancy in tuberculosis, 12
Flipo and Papillon. Dextrocardia due to right-sided pleuropulmonary lesion, 95
Fluid, cerebrospinal, Chemical examination of, in the diagnosis of tuberculous meningitis, 61
—— collections in therapeutic pneumothorax, Multiple, 37
Foa, P. Suggestions for tuberculosis prophylaxis in Italy, 238
Fontecilla, O. The struggle against tuberculosis in Chile, 240
Food, Housing conditions *vs.*, as factors in the increased incidence of pulmonary tuberculosis, 215
Foot, N. C. The endothelium in experimental miliary tuberculosis, 52
Forster, A. M., Webb, G. B., and Gilbert, G. B. Postural rest for pulmonary tuberculosis, 36
Foster, N. B. Tuberculosis of spine simulating pyelitis, 28
Fowler, H. A. Renal tuberculosis and impacted pelvic calculus, 158
Fox, I. Lymphadenoma and tuberculosis, 161
Framingham Community Health and Tuberculosis Demonstration, 151
—— demonstration and industrial medicine, 236
—— experiment, The, 174
France, tuberculosis in, struggle against in, The, 237
Fränkel, A., and Graff, S. A prognostic classification of pulmonary tuberculous lesions, 209
Franz, C. Antituberculosis work in the Czecho-Slovak army, 240
Franz, K. Clinical diagnosis of adult tuberculosis in Czecho-Slovakia, 218
Freilich, E. B., Hruby, A. J., and Mendelsohn, J. J. Blood transfusion in pulmonary tuberculosis, 106
Freundlich, H. Differential diagnosis of caseous pneumonia and proliferative phthisis, 185
Frey, J. J. Tuberculin test of cattle and tuberculosis control, 149
Fried, B., and Moser, M. Complement fixation in surgical tuberculosis, 154
——, ——., —— Urbain, A. Specificity of the Besredka antigen, 143
Friedland, F. The new concentration methods for examination for tubercle bacilli in the sputum, 155
Friedmann treatment, The, 104
—— vaccine, Surgical tuberculosis treated by the, 205
—— ——, The, 233
Friedmann's remedy, Correct and incorrect application of, 234
—— ——, Experiences with, 234
—— —— in the light of Ehrlich's side chain theory, 234
—— treatment of tuberculosis, 233
—— vaccine, Antigenic action of, 241
——, ——, Cold-blooded tubercle bacilli and, 204
—— ——, Experimental immunity effects of, 234
—— —— in pulmonary tuberculosis, 234
—— ——, The specificity of, 204
—— ——, Treatment of lupus vulgaris with, 205
Frisch, A., and Kollert, V. Blood lipases in tuberculosis, 221
Frischbier, G. Lung wounds and pulmonary tuberculosis, 49
Fuentes, S., Dávila, and Rensoli, F. Vaccine treatment of tuberculosis, 74
Fundamental factors in the control of tuberculosis, 152

Fungus, fat, Tubercle bacillus as, 19
Fürstenau, R. Dosable light therapy, 34
Fürstenau's actinometer, Light therapeutic studies with, 34
Fürth. Antigenic property of low virulent tubercle bacilli, turtle and other acid-fast bacilli, 155
Future of the sanatorium, The, 175

Gähwyler, M. Nontuberculous enlargement of the bronchial lymph nodes, 126
Gammons, H. F. Nontuberculous complications of pulmonary tuberculosis, 26
Garin, G. Hemorrhagic purpura and tuberculosis, 30
Gas, Mustard, and experimental tuberculosis, 73
—— poisoning, Chronic, and pulmonary tuberculosis, 11
Gassing vs. tuberculosis, 139
Gassul, R. The action of ultraviolet light on the inner organs of eosin sensitized mice, 198
Gastric tuberculosis, Case of, 189
—— ulcer in the tuberculous, 110
Gauss, H., Rensch, O. B., and Corper, H. J. Tuberculosis and experimental endothelial leucocytosis, 100
Gauvain, H. Educational training in tuberculosis, 42
——, ——. Heliotherapy in surgical tuberculosis, 230
——, ——. Nonoperative treatment of surgical tuberculosis, 168
Geisenhofer, L., and Kammerer, H. The erythrocyte volume in tuberculosis, 182
General hospitals and tuberculosis patients, 137
Genesis of tubal tuberculosis, 112
Genital organs, female, Experimental research on primary tuberculosis of the, 30
—— tuberculosis, 29
—— —— in the male, 29
—— ——, X-ray treatment of peritoneal and, 123
Genitourinary tract, Involvement of, in active pulmonary tuberculosis, 112
Genoese, G. The alizarin test in infantile tuberculosis, 222
Gerdeck, E. Friedmann's treatment of tuberculosis, 233
German sanatoria, Heliotherapy in, 123
German Society for Internal Medicine, Congress of, 130
Germany, Tuberculosis in, 81
Giant cell formation, 67
—— ——, The origin of the multinucleated, 217
Gibson, C. B., and Carroll, W. E. Autourine test for active tuberculosis, 107
Giese, C. Influence of organ extracts on tubercle bacilli, 207
Gilbert, G. B., and Webb, G. B. Bronchiectasis and accessory sinus disease, 130
——, ——. ——., Webb, G. B., and Forster, A. M. Postural rest for pulmonary tuberculosis, 36
Gilbert, O. M. Symptoms vs. physical signs in early diagnosis, 56
Gingold, D. An early diagnostic sign in basilar meningitis, 60
Gittings, J. C., and Donnelly, J. D. Statistics of the Pirquet reaction, 59
Given, D. H. C. Statistics on the prevention of pulmonary tuberculosis, 66
Glaessner, K. Lymph node reactions to tuberculin, 220
Glands, lachrymal, Tuberculosis of the, 61
——, tracheobronchial, Early diagnosis of tuberculosis of the, in children, 91
Glandular and pulmonary tuberculosis, 69
—— tuberculosis in children, Radiologic diagnosis of pulmonary and, 90
Glover, E. G. Tuberculosis in Germany, 81
Gloyne, S. R. Pathology of the mediastinal lymph nodes in tuberculosis, 139
Goats, milk, Tuberculosis in, 97
——, Tuberculosis of, 97
Goeckerman, W. H. Is lupus erythematosus due to tuberculosis, 129
Gold preparation, krysolgan, Ocular tuberculosis treated with a, 208
Golden, G. E. Tuberculosis in milk goats, 97
Görres. Surgical treatment of tuberculosis, 202
Grafe, E. Metabolism in grave, afebrile tuberculosis, 53
Graff, S., and Fränkel, A. A prognostic classification of pulmonary tuberculous lesions, 209
Grancher Institute, The, 147

Grancher, œuvre, The, 237
Granjux. The œuvre Grancher, 237
Grant, A. G. M. The blood pressure in pulmonary tuberculosis, 142
Grass, H. Oxygen or carbon dioxide for initial artificial pneumothorax, 229
Grave, afebrile tuberculosis, Metabolism in, 53
—— cases of pulmonary tuberculosis, The treatment of, with partial antigens, 38
Graves' disease and tuberculosis, Relationship between, 161
Gray, E. A. Spontaneous pneumothorax, 94
——, ——. ——. What the nurse should know about tuberculosis, 106
Gray, H., and Root, H. F. Weight prediction, 140
Great Britain, Control and treatment of tuberculosis in, 172
Greece, Antituberculosis work in, 239
Greeley, H. Chronic nontuberculous lung disease, 129
Greenberg, D. Chronic tuberculous hilum pneumonia in children, 90
Greenberg, J. P. Tuberculous salpingitis, 70
Greenburg, L., and Winslow, C.-E. A. Control of the factory dust problem, 17
——, ——., —— ——, ——. ——. Industrial tuberculosis and the factory dust problem, 47
Gregoire, G. The struggle against tuberculosis in Belgium, 239
Grenet, H., and Drouin, H. Cerium salts in the treatment of chronic tuberculosis, 101
Growth of tubercle bacilli, Effect of amino acids on the, 20
Gruber, G. B. Pulmonary tuberculosis in the Senegalese, 45
Guillery. Experimental contribution on the relationship between phlycenulae and tuberculosis, 176
Guillon, A. The struggle against tuberculosis in France, 237
Guinea pigs, tuberculosis in, treatment of, Artificial sunlight, 231
Gunewardene, T. H. Tuberculosis of the heart, 95
Gunsett, A. Combined X-ray and artificial light treatment of local and pulmonary tuberculosis, 231
Güterbock, R. The course of phthisis under present abnormal environmental conditions, 176
Guthrie, D. Tuberculosis of the ear, 26
Guthrie, J. B. Classification of râles, 219

Habitus and the skin, Presumptive evidence furnished by the, 92
Haecker, R. Surgical treatment of tuberculosis, 200
Hale, H. E. Hernia of the pleura complicating pneumothorax, 27
Hamer, A. G. Surgical treatment of renal tuberculosis, 159
Hammer, K. Striae distensae in consumptives, 142
Hamoir and Liénaux. The origin of the multinucleated giant cell, 217
Harbitz, F. Curability of tuberculous meningitis, 80
Hardoy, P. J., and Alfaro, G. A. Organization of tuberculosis prophylaxis in Argentina, 240
Harms. Pulmonary tuberculosis in childhood, 10
Hartman, Bergeret, and Remilly. Tuberculosis of the adnexa, 29
Hase. Artificial sunlight treatment of tuberculosis in guinea pigs, 231
Haverhill Tuberculosis Association, 138
Hawes, John B., 2nd. Gassing vs. tuberculosis, 139
v. Hayek, H. Chemotherapy of tuberculosis with collargol and colloidal copper, 235
——, ——. Studies in immune biology, disposition and constitution and tuberculosis, 117
Hayes, E. W. Laryngeal tuberculosis, 157
Healed case of tuberculosis of the peritoneum, 95
Healing, delayed, Tuberculous infection and, 163
Health letters, 41
—— resorts, Alpine, for tuberculous patients, 229
—— survey, Cleveland, 44
Healthy side in artificial pneumothorax, Pleural effusion on the, 93
Heart and tuberculosis, The, 126
—— —— vascular diseases, Ultraviolet light treatment of, 198

Heart, Conglomerate tuberculosis of the, 62
—— in early pulmonary tuberculosis, The, 195
——, Tuberculosis of the, 95
——, Tumor-like tuberculosis of the, 62
Heggeney. Experiences with Friedmann's remedy, 234
Heise, F. H. Influenza and tuberculosis, 162
——, ——. ——. Prognosis of pulmonary tuberculosis, 150
Heitmann, N. Scientific methods for obtaining tuberculosis morbidity and mortality statistics, 211
——, ——. Tuberculosis prophylactic work in Norway, 239
Heitzmann, O. The presence of red blood corpuscles in the miliary tubercles of the spleen, 52
Heliotherapy and phototherapy, Contribution to the scientific study of, 50
—— in German sanatoria, 123
—— —— laryngeal tuberculosis, 194
—— —— surgical tuberculosis, 35, 230
—— —— the Alps, 102
—— of lupus, 231
—— —— surgical tuberculosis and necessity of community sanatoria for such patients, 230
——, Surgery of tuberculous joints contrasted with, 230
Hemarthrosis, Tuberculous, of the knee, 69
Heminephrectomy of a horseshoe kidney for tuberculosis, 64
Hemoptysis caused by a calculus, Repeated, 94
——, Treatment of, 79
——, —— ——, Artificial pneumothorax in, 167
——, —— ——, Camphor and emetine in the, 79
Hemorrhages into the liver in pulmonary tuberculosis, 52
——, Tuberculous, 189
Hemorrhagic purpura and tuberculosis, 30
Herd plan, Accredited, and the practitioner, 169
Herds, Tuberculosis-free accredited, 15
Hereditary syphilis, Tuberculous meningitis and, 227
Heredity in tuberculosis, 47
Hernia of the pleura complicating pneumothorax, 27
Hesse, E. Light in the treatment of syphilis, 198
Hesse, P. Pütter's system of caring for those with pulmonary tuberculosis, 229
Hilum, Apex, and lower lobe lesions of tuberculosis in childhood, 89
—— pneumonia in children, Chronic tuberculous, 90
Hip disease, Tuberculous, and its simulants, 127
—— joint, Tuberculous disease of, 96
Hirsch, G. Tuberculous toxins as causes of disease, 216
Hirschmann, E. Influence of aureol lamp rays on immunity, 232
History of tuberculosis, 151
Hoagland, H. W. Sanatorium care of tuberculous soldiers, 152
Hodgkin's disease, Clinical observations on, 227
Holland, tuberculosis in, Struggle against, The, 239
Hollander, L., and Narr, F. C. Syphilis and tuberculosis, 162
Holt, R. C. Tuberculinization of babies, 75
Holten, C. Tuberculous meningitis in adult consumptives, 111
Honoré, C. Pleurisy due to cold, 27
Horovitz, A., and Dünner, L. Inhibition of the tuberculin reaction by serums, transudates and exudates, 205
Horses, Tuberculosis of, 150
Horseshoe kidney, Heminephrectomy of a, for tuberculosis, 64
Hospital practice, state, Tuberculosis problems in, 41
—— school for surgical tuberculosis in children, 76
Hospitals, General, and tuberculosis patients, 137
Housing conditions vs. food as factors in the increased incidence of pulmonary tuberculosis, 215
Hruby, A. J. X-ray in diagnosis, 92
——, ——. ——., Mendelsohn, J. J., and Freilich, E. B. Blood transfusion in pulmonary tuberculosis, 106
Hruska, C., and Pfenninger, W. Complement fixation in bovine tuberculosis, 98

Hudson, B. Alpine health resorts for tuberculosis patients, 229
Huldschinsky, K. Ultraviolet ray treatment of rickets, 232
Human tuberculosis, Bovine and, 169
Humbert, F. Fight against tuberculosis in large communities, 40
Humoral antibodies in tuberculosis, 182
Hussey, R. G. Leucocytic response in experimental tuberculous infections, 73
Hutchinson, R. C. Tuberculosis in a parish, 134
Hutinel, V., and Merklen, P. Tuberculous meningitis and hereditary syphilis, 227
Hyperemia, venous, The treatment of surgical tuberculosis in children by, 148
Hypersensitiveness, Tuberculin, 117
Hyperthyroidism, Blood sugar and basal metabolism findings in chronic pulmonary tuberculosis and, 186
Hypertrophic osteoarthropathy, Secondary pulmonary, 63

Ichok, G. Pulmonary tuberculosis in the aged, 144
——, ——. Tuberculosis antibodies in the aged, 53
Illumination, dark field, The detection of tubercle bacilli by, 186
Imhof, O. Auto-urine and autoserum biologic test for tuberculosis, 26
Immune biology, disposition and constitution and tuberculosis, Studies on, 117
—— bodies, Spengler's, 31
—— reactions with artificial pneumothorax, 108
——, Tuberculosis, milk, 224
Immunity effects of Friedmann's vaccine, Experimental, 234
—— in tuberculosis, Rôle of, 118
——, Influence of aureol lamp rays on, 232
—— to tuberculosis, 16
Immunization by nonvirulent and nontoxic living tubercle bacilli, 39
Immunizing vaccine, Tuberculosis, 119
Impacted pelvic calculus, Renal tuberculosis and, 158
Induced pneumothorax, 116
Industrial accidents, Tuberculosis after, 153
—— medicine, Framingham demonstration and, 236
Industrial tuberculos is and the factory dust problem, 47
Infancy, pretuberculous state in, Study and treatment of the, 145
——, pulmonary tubercle of, The, 177
——, tuberculosis in, Diagnosis and prognosis of, 87
Infant and tuberculosis mortality during the eighteenth century, Statistics on: the first census in Vienna, 43
——, Complete pneumothorax in an, 146
——, spontaneous pneumothorax in an, Case of, 224
——, tuberculosis in an, An unsual case of, 178
Infantile tuberculosis, The alizarin test in, 222
Infants and children, Roentgen ray and tuberculosis in, 108
—— —— ——, tuberculous, Epituberculous infiltration of the lungs in, 146
—— —— young children, Tuberculosis in, 88
——, Contagiousness of pulmonary tuberculosis in, 215
—— of tuberculous mothers, 10
——, Open pulmonary tuberculosis in, 178
——, Preservation of, 237
Infection, bacillary, Diagnostic methods of, 222
—— in tuberculosis, 107
——, mixed, Chronic tonsillitis as a source of, in pulmonary tuberculosis, 183
——, ——, in surgical tuberculosis, 71
——, Tuberculous, and delayed healing, 163
——, ——, in advanced childhood, Danger of, 215
——, ——, of a child, 215
Infectivity of tuberculosis, 48
Infiltration, Epituberculous, of the lungs in tuberculous infants and children, 146
——, Tuberculous edematous, of the lung, 158
Influenza and pulmonary tuberculosis, 216
—— —— tuberculosis, 12, 162
——, Pulmonary sequellae of, 72
Inguinal lymph node involvement in intraäbdominal tuberculosis, 189
Inhibition of the tuberculin reaction by serums, transudates and exudates, 205
Injection of patient's own urine, intracutaneous, Diagnostic value of, 60

Inner organs of eosin sensitized mice, The action of ultraviolet light on, 198
Inspection, Value of, in diagnosis of tuberculosis, 21
Institutional treatment in surgical tuberculosis, 164
Institutions for sun treatment, 103
——, tuberculosis, Statistics of, 7
Insufficiency, Apical respiratory, and the diagnosis of pulmonary tuberculosis in adults, 57
Insurance, life, selection, Tuberculous disease in, 134
Internal secretion, The skin as an organ of, 191
—— use of iodine, The, 32
Intestinal tuberculosis, X-ray treatment of pulmonary and, 123
Intraäbdominal tuberculosis, Inguinal lymph node involvement in, 189
Intracutaneous injection of patient's own urine, Diagnostic value of, 60
—— tuberculin injection as revealed by the capillary microscope, The, 142
—— —— test in cattle, 149
—— —— treatment, 39
Intrapleural pressure in artificial pneumothorax, Importance of exact measurement of, 195
Intrathoracic movements, 141
Inunction, tuberculin, Diagnostic, 188
Iodine, The internal use of, 32
——, Treatment of lupus with, exposed to X-rays, 233
Isolation of tubercle bacilli from sputum by Petroff's method, 224
Italy, tuberculosis prophylaxis in, Suggestions for, 238

Jacob, L., and Blechschmidt, M. Treatment of tuberculosis with partial antigens (Deycke-Much), 206
Jacobaeus, H. C. Cauterization of adhesions in pneumothorax, 121
——, ——. ——. Severing adhesions impeding therapeutic pneumothorax, 167
Jacobs, P. P. Controlling tuberculosis, 41
Jacquelin, C., and Ramond, F. Dyspepsia from Pott's disease, 110
Jager, R., Kolmer, J. A., and Davis, L. C. The influence of chaulmoogra oil on the tubercle bacillus, 74
Japan, tuberculosis in, struggle against, The, 241
Jaquerod, M. Repeated hemoptysis caused by a calculus, 94
Jensen, C. Mortality from tuberculosis in Denmark, 82
Jentsch, Healed case of tuberculosis of the peritoneum, 95
Jerusalem, M. Mixed infection in surgical tuberculosis, 71
Jesionek, H. Heliotherapy of lupus, 231
——, ——. Light, skin and tuberculosis, 124
Jessen, F. The operative treatment of pulmonary tuberculosis, 120
Joint, bone and, tubercle, Stigmata of predisposition to, 85
—— disease, Tuberculous bone and, 96
——, hip, Tuberculous disease of, 96
——, knee, Tuberculosis of, 128
—— tuberculosis, bone and, Light treatment of, 230
Joints, early tuberculous, Differential diagnosis of, 21, 191
——, tuberculosis of the bones and, Treatment of, 105
——, —— —— ——, Unusual forms of, 191
——, tuberculous, Surgery of, contrasted with heliotherapy, 230
de Jong, S. I., and Bezancon, F. Tuberculous hemorrhages, 139
Jousset, A. The avian tubercle bacillus, 223
Jungano, M. Primary tuberculosis of the bladder, 29

Kafka, V. Genesis of tubal tuberculosis, 112
Kammerer, D. The prognostic significance of the cutaneous reaction to old tuberculin and to partial antigens in tuberculosis, 209
Kammerer, H., and Geisenhofer, L. The erythrocyte volume in tuberculosis, 182
Karger, P. The results of X-ray treatment in children, 148
Kasemayer, C. Treatment of tuberculous peritonitis, 231
Keining, E. The detection of tubercle bacilli by dark field illumination, 186
Kersten, H. E. Tuberculosis in the South Sea colonies, 214
Kharina-Marinucci, R. Agglutination reaction in tuberculous infection of children, 222

Kidney, Chronic tuberculosis of the, 70
——, horseshoe, Heminephrectomy of a, for tuberculosis, 64
——, Tuberculosis of the, in women, 70
——, —— —— ——, Treatment of, 105
——, tuberculous, Rationale of diagnostic catheterization in, 190
Kiefer, O. Influenza and pulmonary tuberculosis, 216
Kipris, B. Tuberculous lymphangitis, 70
Kisch, O. Light treatment of bone and joint tuberculosis, 230
Klare. Pulmonary tuberculosis in childhood, 10
——. The urochromogen reaction in surgical tuberculosis, 92
Klein, L. A. Pioneer work in tuberculosis control, 16
Kleinberg, S. Secondary pulmonary hypertrophic osteoarthropathy, 63
Klemperer, F. Recent methods of treating pulmonary tuberculosis, 228
Klotz. Open pulmonary tuberculosis in infants, 178
Knee joint, Tuberculosis of, 128
Knights of Columbus in tuberculosis campaign, 106
Knobel, W. B. Classification of tuberculosis, 40
Knopf, S. A. The soul of the consumptive, 1
Kohn, H. Congress of the German Society for Internal Medicine, 130
Kolb, E. P. Climate in tuberculosis, 104
Kollert, V., and Frisch, A. Blood lipases in tuberculosis, 221
Kolmer, J. A., Davis, L. C., and Jager, R. The influence of chaulmoogra oil on the tubercle bacillus, 74
König, F. Surgical treatment of tuberculosis, 199
Korteweg, R. Trauma and tuberculosis, 106
Krämer, C. Allergy or anergy, 31
Krause, A. K. Course of the tubercle bacillus from sputum to child, 89
Krumm, F. Surgical tuberculosis treated by the Friedmann vaccine, 205
Krysolgan, a gold preparation, Ocular tuberculosis treated with, 208
—— chemotherapy, 234
Kühn, A. Silica in pulmonary tuberculosis, 79
Kümmell, C. X-ray treatment of laryngeal tuberculosis, 122
Kurlander, J. J. Tuberculosis of knee joint, 128
Küss, G. Importance of exact measurement of intrapleural pressure in artificial pneumothorax, 195
Kutschera-Aichbergen, A. Tuberculosis among Catholic nursing sisters, 214
Kuznitsky, E., and Chotzen, T. Exposure of the cornea to ultraviolet light, 198
Kwiatkovski. The struggle against tuberculosis in Poland, 240

Labesse, P., and Courcoux, A. Tuberculosis in old age, 179
Laboratory and clinical methods in tuberculosis, Relative value of, 218
—— diagnosis of renal tuberculosis, The, 190
Lachrymal glands, Tuberculosis of the, 61
Ladd, W. E. Abdominal tuberculosis in children, 179
Lade, O. The intracutaneous tuberculin injection as revealed by the capillary microscope, 142
Ladebeck, H. The quartz laryngeal mirror, 34
Lamp, aureol, rays, Influence of, on immunity, 232
Landsman, A. A. Nontuberculous anorectal fistula resembling the tuberculous variety, 226
Lange, L. The Friedmann vaccine, 233
Langendörfer, J. W. The fate of children of tuberculous parents during the war, 215
Lanz, O. Surgical tuberculosis, 28
Lanzilotta, R. The use of ultraviolet rays in the preparation of vaccines, 122
Large communities, Fight against tuberculosis in, 40
—— U. S. cities, Pulmonary tuberculosis mortality of, 134
Larsen, R. B., and Secher, K. Sochanski's method of differentiating exudates from transudates, 186
Laryngeal mirror, quartz, The, 34
—— tuberculosis, 156
—— ——, Heliotherapy in, 194

Laryngeal tuberculosis, Nerve block in, 126
—— ——, pulmonary and, Light treatment of, 229
—— ——, Treatment of, 231
—— ——, —— ——, with the arc light, 123
—— ——, X-ray treatment of, 122
Laryngitis, tuberculous, X-ray treatment of, 102
Laryngopulmonary tuberculosis, 125
Larynx, Radiating the, with ultraviolet rays, 34
Latent pulmonary tuberculosis in its disguises, 55
—— tuberculosis, 180
Leegaard, F. Tuberculosis of the middle ear, 157
Lefthandedness, Squint, and tuberculosis, 67
Leichtweiss. Therapeutic value of the Ponndorf tuberculin treatment in pulmonary tuberculosis, 205
Lemoine, G. H. Tenderness over tuberculous apex, 57
Lemon, W. S., and Doyle, J. B. Clinical observations on Hodgkin's disease, 227
Lenoble, M. E. Tuberculous myocarditis, 27
Lenormant. Treatment of tuberculosis of the bones and joints, 105
Leprosy and tuberculosis, Chaulmoogra oil in, 168
Lesions, pulmonary tuberculous, A prognostic classification of, 209
——, surgical tuberculous, Pulmonary tuberculosis in cases of, 225
Letters, Health, 41
Letulle, M. Tuberculosis and cancer of the lung, 62
Leucocytes, Action of light on the, 51
—— during the treatment of tuberculosis with the Deycke-Much partial antigens, The, 206
Leucocytic response in experimental tuberculous infections, 73
Leucocytosis, Tuberculosis and experimental endothelial, 100
Levin, I. Action of radium and roentgen rays on normal and diseased lymphoid tissue, 199
Levinson, A. Tuberculosis in children, 108
Libby, G. F. Tuberculous meningitis, 30
Liebe, G. Heliotherapy in German sanatoria, 123
Liebman, E. Morphology of the sputum in pulmonary tuberculosis, 20
Liénaux and Hamoir. The origin of the multinucleated giant cell, 217
Life insurance selection, Tuberculous disease in, 134
Light, Action of, on the leucocytes, 51
—— and climatic treatment of tuberculosis, 124
——, arc, Treatment of laryngeal tuberculosis with the, 123
——, artificial, X-ray and, Combined, treatment of local and pulmonary tuberculosis, 231
—— baths, artificial chemical, Results of treatment of lupus vulgaris and surgical tuberculosis with, 197
—— —— in ophthalmology, Universal, 122
—— dosage, 51
—— in the treatment of syphilis, 198
——, quartz, Scarlatinal rash after the use of, 51
—— rays, Action of the visible, on the body temperature, 103
——, skin and tuberculosis, 124
—— therapeutic studies with Fürstenau's actinometer, 34
—— therapy, Double, 34
—— treatment, artificial, Combined X-ray and, of local and pulmonary tuberculosis, 231
—— ——, formula for, A, 194
—— —— of bone and joint tuberculosis, 230
—— —— —— pulmonary and laryngeal tuberculosis, 229
—— —— —— tuberculosis, 229
—— —— —— ——, Theory and practice of, 230
—— —— —— venereal diseases, The, 197
——, ultraviolet, Exposure of the cornea to, 198
——, ——, The action of, on the inner organs of eosin sensitized mice, 198
——, ——, treatment of heart and vascular diseases, 198
Limousin, H. Isolation of tubercle bacilli from sputum by Petroff's method, 224
Lindenberg, A., and Pestana, B. R. Chemotherapy with acid-resisting bacteria, 78
——, ——., —— ——, ——. ——. Effect of fats on acid-fast bacteria, 208

Lindner, P. Tubercle bacillus as fat fungus, 19
Lip, Tuberculosis of the, 44
Lipases, Blood, in tuberculosis, 221
Litzner. Early diagnosis of pulmonary tuberculosis, 184
Liver, Hemorrhages into the, in pulmonary tuberculosis, 52
Living tubercle bacilli, nonvirulent and nontoxic, Immunization by, 39
Lobe, Lower, tuberculosis, 138
Local and pulmonary tuberculosis, Combined X-ray and artificial light treatment of, 231
Localized pleural irritation and syncopal accidents, 109
Loebenstein, F. Antigenic action of Friedmann's vaccine, 241
Loevenhjelm. The struggle against tuberculosis in Sweden, 240
Lovett, R. W., and Wolbach, S. B. Roentgenography of obscure bone lesions, 61
Low tuberculosis death rate for November, 1920, 7
—— virulent tubercle bacilli, turtle and other acid-fast bacilli, Antigenic property of, 155
Lower lobe lesions of tuberculosis, Apex, hilum and, in childhood, 89
—— —— tuberculosis, 138
Luithlen, F. The leucocytes during the treatment of tuberculosis with the Deycke-Much partial antigens, 206
Luke, D. Antituberculosis work in New South Wales, 241
Lundsgaard, K. Universal light baths in ophthalmology, 122
Lung changes, Nontuberculous, following pneumonia, 14
—— disease, Chronic nontuberculous, 129
—— mapping with bismuth mixtures, 141
——, The mononuclear phagocytes of the, 19
——, Tuberculosis and cancer of the, 62
——, Tuberculous edematous infiltration of the, 158
—— tumors, Diagnosis of, 227
——, Which, is most frequently involved in pulmonary tuberculosis, 185
—— wounds and pulmonary tuberculosis, 49
Lungs, Epituberculous infiltration of the, in tuberculous infants and children, 146
Lupus erythematosis, Is, due to tuberculosis, 129
——, Heliotherapy of, 231
——, Treatment of, with iodine exposed to X-rays, 233
—— vulgaris and surgical tuberculosis, Results of treatment of, with artificial chemical light baths, 197
—— ——, Treatment of, with Friedmann's vaccine, 205
Lymph node, Inguinal, involvement in intraäbdominal tuberculosis, 189
—— —— reactions to tuberculin, 220
—— —— tuberculosis, Axillary, in pulmonary tuberculosis, 158
—— nodes, bronchial, Nontuberculous enlargement of the, 126
—— ——, mediastinal, Pathology of the, in tuberculosis, 139
—— ——, tuberculous, X-ray treatment of, 74, 199
Lymphadenitis, tuberculous, X-ray treatment of, 78
Lymphadenoma and tuberculosis, 161
Lymphangitis, Tuberculous, 70
Lymphocytes, Albumin, and tubercle bacilli in the sputum, 92
Lymphoid tissue, Action of radium and roentgen rays on normal and diseased, 199
Lynah, H. L. Lung mapping with bismuth mixtures, 141
Lynch, J. M. A case of tuberculous mesenteric nodes, 127

Macewen, J. A. C. Tuberculous hemarthrosis of the knee, 69
Madsen. The antituberculosis campaign in Denmark, 239
Magnus, G. Heminephrectomy of a horseshoe kidney for tuberculosis, 64
Maher, S. J. Cure or preventive of tuberculosis, 132
——, ——. ——. Prevention of tuberculosis in the United States, 172
——, ——. ——. Why tuberculosis schemes fail, 2
v. Malmström. Light treatment of tuberculosis, 229

Man, The bovine bacillus and, 14
Management, Medical, of renal tuberculosis, 159
—— of pleural effusions in therapeutic pneumothorax, 121
Mann, H., and Boas, E. P. The heart and tuberculosis, 126
Mapping, Lung, with bismuth mixtures, 141
Maragliano, E. Vaccine therapy of tuberculosis, 30
Marchisotti, A. C. Excretion of tubercle bacilli in bile, 98
Marcley, W. J. Treatment of early pulmonary tuberculosis, 37
Mark, E. G. Primary tuberculosis of the testicle, 97
Marker, J. I., and Rendleman, W. H. Primary tuberculosis of the thyroid, 61
Marsh, P. L. Atypical tuberculosis with Mikulicz's syndrome, 160
Marshall, C. J. Control of cattle tuberculosis, 116
Martin, T. H. Care of tuberculous cripples, 203
——, ——. ——. Hospital school for surgical tuberculosis in children, 76
Martinotti vaccine for tuberculosis, The, 31
Massini, R. Calcium and tuberculosis in rabbits, 102
Mastoiditis and suboccipital Pott's disease, 96
Masucci, P. Effect of amino acids on the growth of tubercle bacilli, 20
Mau, C. Diagnostic value of tuberculin in surgical tuberculosis, 110
Mayer, A. E. Which lung is most frequently involved in tuberculosis, 185
Mayo, C. H. Tuberculous peritonitis, 110
McBrayer, R. A. Blood sugar and basal metabolism findings in chronic pulmonary tuberculosis and hyperthyroidism, 186
McCann, W. S., and Barr, D. P. Metabolism in tuberculosis, 53
McDougall, J. B. Diagnosis of active pulmonary tuberculosis, 21
McGoldrick, T. A. The care of moderately advanced pulmonary tuberculosis, 37
McJunkin, F. A. Pulmonary botryomycosis, 99
——, ——. ——. Tuberculin hypersensitiveness, 117
McNaught, P. R. Work of an after-care committee, 175
McNutt, S. H., Purwin, P., and Murray, C. Tuberculosis of goats, 97
Measurement of intrapleural pressure in artificial pneumothorax, Importance of exact, 195
Mechanical treatment of tuberculosis, 36
Meckel's diverticulum, Tuberculosis of, 62
Mediastinal lymph nodes, Pathology of, in tuberculosis, 139
Medical education in tuberculosis, 174
—— management of renal tuberculosis, 159
—— profession, Rôle of, in prevention of tuberculosis, 235
Mendelsohn, J. J., Freilich, E. B., and Hruby, A. J. Blood transfusion in pulmonary tuberculosis, 106
Mendelson, R. W. Pulmonary tuberculosis, mycosis and spirochetosis, 160
——, ——. ——. Tropical broncho-pulmonary mycosis, 130
Meningitis, basilar, An early diagnostic sign in, 60
——, Tuberculous, 30, 71
——, ——, and hereditary syphilis, 227
——, ——, Association of, with meningococci and parameningococci, 97
——, ——, Curability of, 80
——, ——, diagnosis of, Chemical examination of the cerebrospinal fluid in the, 61
——, ——, in adult consumptives, 111
——, ——, —— adults, 160
——, ——, —— ——, The symptoms of, 114
Meningococci and parameningococci, Association of tuberculous meningitis with, 97
Menninger, K. A. Feeblemindedness and tuberculosis, 64
Menses, Tuberculin reaction during the, 93
Mercury compounds in the chemotherapy of experimental tuberculosis, 33
Merklen, P., and Hutinel, V. Tuberculous meningitis and hereditary syphilis, 227
Mertz, H. O. Differential diagnosis of renal tuberculosis, 159
Méry, H. Early diagnosis of tuberculosis of the tracheobronchial glands in children, 91
——, ——., Detre, G., and Mezmoulins, A. Radiologic diagnosis of pulmonary and glandular tuberculosis in children, 90

Mesenteric nodes, tuberculous, A case of, 127
Metabolism and diet in tuberculosis, 54
——, basal, Blood sugar and, findings, in chronic pulmonary tuberculosis and hyperthyroidism, 186
—— in grave, afebrile tuberculosis, 53
—— —— tuberculosis, 53
Metalnikow, S. Resistance of the caterpillar to tubercle bacilli, 53
Metcalf, W. B. Tuberculous disease in life insurance selection, 134
Methods for obtaining tuberculosis morbidity and mortality statistics, Scientific, 210
——, The new concentration, for examination for tubercle bacilli in the sputum, 155
Methylene blue excretion in tuberculosis, 183
Metropolitan Life Insurance Company Sanatorium, 85
Meyer, F. Light therapeutic studies with Fürstenau's actinometer, 34
Mezmoulins, A., Méry, H., and Detre, G. Radiologic diagnosis of pulmonary and glandular tuberculosis in children, 90
Mice, eosin sensitized, The action of ultraviolet light on, 198
Microscope, capillary, The intracutaneous tuberculin injection as revealed by the, 142
Middle ear, Tuberculosis of the, 157
Middleton, E. L. Pulmonary silicosis, 62
Mikulicz's syndrome, Atypical tuberculosis with, 160
Miliary tubercles of the spleen, The presence of red blood corpuscles in the, 52
—— tuberculosis, experimental, The endothelium in, 52
Milk goats, Tuberculosis in, 97
——, tubercle bacilli in, Action of prolonged pasteurization on, 72
——, Tuberculosis immune, 224
Miller, E. B. Tuberculous infection and delayed healing, 163
Minton, H. M. Pulmonary syphilis simulating tuberculosis, 115
Mirror, The quartz laryngeal, 34
Misleading beliefs regarding pulmonary tuberculosis, 55
Mittasch, G. Hemorrhages into the liver in pulmonary tuberculosis, 52
Mixed infection, Chronic tonsillitis as a source of, in pulmonary tuberculosis, 183
—— —— in surgical tuberculosis, 71
Moderately advanced pulmonary tuberculosis, The care of, 37
Moeller, A. Cold-blooded tubercle bacilli and Friedmann's vaccine, 204
Molle. Tenderness in muscles as early sign of tuberculous lesion beneath, 25
Mononuclear phagocytes of the lung, The, 19
Moon, V. H. Pathology of renal tuberculosis, 159
Morbidity and mortality statistics, Scientific methods for obtaining tuberculosis, 210
—— from tuberculosis in the United States, Mortality and, 171
Moreau, L. Two cases of surgical thoracic tuberculosis, 121
Morenas and Mouriquand, G. Chemical examination of the cerebrospinal fluid in the diagnosis of tuberculous meningitis, 61
Moris. Organization of tuberculosis prophylaxis in Switzerland, 238
Moro, E. A diagnostic tuberculin, 187
——, ——. Diagnostic tuberculin inunction, 188
Morphology of the sputum in pulmonary tuberculosis, 20
Morquio, L. Tuberculous meningitis, 71
Mortality and morbidity from tuberculosis in the United States, 171
—— from tuberculosis in Denmark, 82
——, infant and tuberculosis, Statistics on, during the eighteenth century: the first census in Vienna, 43
——, Pulmonary tuberculosis, since 1914, 132
—— statistics, morbidity and, Scientific methods for obtaining tuberculosis, 210
——, Tuberculosis, in New York City according to sex, 213
——, ——, —— Vienna before and after the war, 81
Moser, M., and Fried, B. Complement fixation in surgical tuberculosis, 154

Mothers, tuberculous, Infants of, 10
Mouisset. Need of assistance for preventoriums, 237
Mouriquand, G., and Morenas. Chemical examination of the cerebrospinal fluid in the diagnosis of tuberculous meningitis, 61
Movements, Intrathoracic, 141
Much, H. Tuberculosis of children, 89
Mühlmann, E. X-ray treatment of tuberculosis, 199
Multinucleated giant cell, The origin of the, 217
Multiple fluid collections in therapeutic pneumothorax, 37
Munce, T. E. Coöperative tuberculosis campaign, 42
Munich, The war and tuberculosis among the children of, 178
Murray, C., McNutt, S. H., and Purwin, P. Tuberculosis of goats, 97
Murray, F. Mechanical treatment of tuberculosis, 36
Muscles, Tenderness in, as early sign of tuberculous lesion beneath, 25
Mustard gas and experimental tuberculosis, 73
Mycosis, Pulmonary tuberculosis, and spirochetosis, 160
——, Tropical bronchopulmonary, 130
Myocarditis, Tuberculous, 27
Myocardium, Tuberculosis of, 62

Naegeli, T. Results of surgical treatment of pulmonary tuberculosis, 39
Narr, F. C., and Hollander, L. Syphilis and tuberculosis, 162
Nathan, M. The Friedmann treatment, 104
Navarro, J. C., and Alfaro, G. A. Scientific methods for obtaining tuberculosis morbidity and mortality statistics, 211
Nègre, L., and Boquet, A. Alcohol extracts of the tubercle bacillus as antigens, 143
——, ——., —— ——, ——. Tuberculosis in small rodents, 99
——, —., Calmette, A., and Boquet, A. Properties of tubercle bacilli attenuated by bile, 223
Negri, L. Heliotherapy in surgical tuberculosis, 35
Negroes, Tuberculosis among, in New York City, 214
Nerve block in laryngeal tuberculosis, 126
Neuland, E., and Eliasberg, H. Epituberculous infiltration of the lungs in tuberculous infants and children, 146
New concentration methods for examination for tubercle bacilli in the sputum, The, 155
—— method of staining the tubercle bacillus, A, 93
New South Wales, Antituberculosis work in, 241
New York City and State, Deaths and death rates from pulmonary tuberculosis in, 4, 82
—— —— —— deaths from tuberculosis since 1898, 133
—— —— ——, Tuberculosis among negroes in, 214
—— —— ——, Tuberculosis in, 66, 82
—— —— ——, —— mortality in, according to sex, 213
—— —— ——, —— statistics, May-July, 1921, 213
—— —— ——, Vital statistics for the year 1920 in, 7
Newsholme, A. The control of tuberculosis, 174
Nitrous oxide-oxygen anesthesia in tuberculous animals, 86
No compromise with bovine tuberculosis, 168
Noll, F. Radiating the larynx with ultraviolet rays, 34
Nonoperative treatment of surgical tuberculosis, 168
Nontoxic, nonvirulent and, living tubercle bacilli, Immunization by, 39
Nontuberculous anorectal fistula resembling the tuberculous variety, 226
—— cold abscesses, 115
—— complications of pulmonary tuberculosis, 26
—— enlargement of the bronchial lymph nodes, 126
—— lung changes following pneumonia, 14
—— —— disease, Chronic, 129
—— spina ventosa, 28
Nonvirulent and nontoxic living tubercle bacilli, Immunization by, 39

Norway, Tuberculosis prophylactic work in, 239
Nose as a defense against tuberculosis, The, 216
November, 1920, Low tuberculosis death rate for, 7
Nurse, The public health, in the campaign, 138
——, What the, should know about tuberculosis, 106
Nursing orders, Tuberculosis among Catholic, 214
Nurslings, Tuberculosis in, 144

O'Brien, F. W. X-ray diagnosis in phthisis, 23
——, ——. ——., and Ames, F. B. Roentgen ray and tuberculosis in infants and children, 108
Obscure bone lesions, Roentgenography of, 61
Occupations for consumptives, 77
Ocular tuberculosis, Phototherapy of, 196
—— —— treated with a gold preparation, krysolgan, 208
Oehler, J. Differential diagnosis of early tuberculous joints, 21
Oeuvre Grancher, The, 237
Offenbacher, R. The determination of activity according to Wildbolz, 25
Old age, Tuberculosis in, 179.
Open pulmonary tuberculosis in infants, 178
Open-air schools during 1919, 76
Operation for tuberculosis of the wrist, 32
Operative treatment of surgical tuberculosis, The, 120
Ophthalmology, Universal light baths in, 122
Organ extracts, Influence of, on tubercle bacilli, 207
—— of internal secretion, The skin as an, 191
Origin of the multinucleated giant cell, The, 217
Ornstein, G. G., and Petroff, S. A. Humoral antibodies in tuberculosis, 182
Osteoarthropathy, Secondary pulmonary hypertrophic, 63
Osteomyelitis, tuberculous arthritis and, treatment of, X-rays in the, 233
Otis, E. O. Differential diagnosis of tuberculosis, 22
Otis, E. O. Misleading beliefs regarding pulmonary tuberculosis, 55
Ott, A. Treatment of pulmonary tuberculosis, 103
Oxygen or carbon dioxide for initial artificial pneumothorax, 229
Ozena and tuberculosis, 191

Packard, E. N. Nontuberculous lung changes following pneumonia, 14
Paget, O. The diagnosis of tuberculosis, 139
——, ——. The nose as a defense against tuberculosis, 217
Palmer, G. T., and Hoagland, H. W. Sanatorium care of tuberculous soldiers, 152
Papillon and Flipo. Dextrocardia due to right-sided pleuropulmonary lesion, 95
Parameningococci, meningococci and, Association of tuberculous meningitis with, 97
Paratuberculous pulmonary disease, 224
Parents, tuberculous, The fate of children of, during the war, 215
Parish, Tuberculosis in a, 134
Parks, Tuberculous children sleep in, 148
Partial antigens (Deycke-Much), Treatment of tuberculosis with, 206
—— ——, the Deycke-Much, The leucocytes during the treatment of tuberculosis with, 206
—— ——, —— prognostic significance of the cutaneous reaction to old tuberculin and to, in tuberculosis, 209
—— —— ——, treatment of grave cases of pulmonary tuberculosis with, 38
—— ——, Treatment of pulmonary tuberculosis with, 103
Passow, A. Phototherapy of ocular tuberculosis, 196
Pasteurization, Action of prolonged, on tubercle bacilli in milk, 72
Pathology and treatment of empyema complicating pulmonary tuberculosis, The, 192
—— of renal tuberculosis, 159
—— —— the mediastinal lymph nodes in tuberculosis, 139
—— —— —— pleural endothelium, 181
Patients, tuberculosis, Public Health Service forced to transfer, to the east, 4

Patients, tuberculous, Alpine health resorts for, 299
Pattison, H. A. Mortality and morbidity from tuberculosis in the United States, 171
Pavodi, F., and Dumarest, F. Pathology of the pleural endothelium, 181
Pech, H. Antagonism between different parts of the spectrum, 122
Pedunculated tuberculosis of the peritoneum, 190
Peller, S. Statistics on infant and tuberculosis mortality during the eighteenth century. The first census in Vienna, 43
Pellissier, P., Scheffler, L., and Sartory, A. Sodium silicate by the vein, 80
Pelvic calculus, impacted, Renal tuberculosis and, 158
Penis, Tuberculosis of the, 64
Pennsylvania, Campaign against tuberculosis in, 84
——, Tuberculosis eradication among cattle in, 98
Percutaneous reaction with highly concentrated tuberculin, 220
Pericarditis, chronic tuberculous, Pleuropulmonary tuberculosis and, 95
Peritoneal and genital tuberculosis, X-ray treatment of, 123
—— tuberculosis, treatment of, Conservative, with X-rays, 232
—— ——, X-ray treatment of, 123
Peritoneum, Pedunculeated tuberculosis of the, 190
——, tuberculosis of the, Healed case of, 95
Peritonitis, Tuberculous, 110
——, ——, Treatment of, 231
Permar, H. H. The mononuclear phagocytes of the lung, 19
Pestana, B. R., and Lindenberg, A. Chemotherapy with acid-resisting bacteria, 78
——, ——. ——., —— ——, ——. Effect of fats on acid-fast bacteria, 208
Peters, R. Diagnostic value of Pirquet test, 220
Peterson, A. Involvement of genitourinary tract in active pulmonary tuberculosis, 112
Petroff, S. A., and Ornstein, G. G. Humoral antibodies in tuberculosis, 182
Petroff's method, Isolation of tubercle bacilli from sputum by, 224
Petruschky's prophylaxis, 241
Peyrer, K. Danger of tuberculous infection in advanced childhood, 215
Pfeiffer, R. Methylene blue excretion in tuberculosis, 183
Pfenninger, W., and Hruska, C. Complement fixation in bovine tuberculosis, 98
Phagocytes of the lung, The mononuclear, 19
Philip, R. Control and treatment of tuberculosis in Great Britain, 172
Philips, H. B., and Finkelstein, H. X-rays in the treatment of tuberculous arthritis and osteomyelitis, 233
Phlyctenulae and tuberculosis, relationship between, Experimental contribution on the, 176
Phototherapy, heliotherapy and, Contribution to the scientific study of, 50
—— of ocular tuberculosis, 196
Phrenic sign in pulmonary tuberculosis, The, 153
Phthisis, proliferative, Differential diagnosis of caseous pneumonia and, 185
——, The course of, under present abnormal environmental conditions, 176
——, X-ray diagnosis in, 23
Physical development of tuberculous children, The, 147
—— signs, Symptoms *vs.*, in early diagnosis, 56
Pickhan. Axillary lymph node tuberculosis in pulmonary tuberculosis, 158
Pietroforte, V. Fatigue as a test of the tuberculous, 140
Pioneer work in tuberculosis control, 16
Pirquet reaction, Statistics of the, 59
—— test, Diagnostic value of, 220
Plan, Accredited herd, and the practitioner, 169
Pleura, Hernia of the, complicating pneumothorax, 27
Pleural cavity in artificial pneumothorax, Investigation of the, 229
—— effusion on the healthy side in artificial pneumothorax, 93
—— effusions in therapeutic pneumothorax, Management of, 121
—— endothelium, Pathology of the, 181

Pleural irritation, Localized, and syncopal accidents, 109
Pleurisy due to cold, 27
——, exudative, Therapeutic pneumothorax in, 37
—— with effusion, Tuberculin in the treatment of, 206
Pleuropulmonary lesion, right-sided, Dextrocardia due to, 95
—— tuberculosis and chronic tuberculous pericarditis, 95
Pneumonia, caseous, and proliferative phthisis, Differential diagnosis of, 185
——, Chronic tuberculous hilum, in children, 90
——, Nontuberculous lung changes following, 14
Pneumothorax, Artificial, 167
——, ——, A complication of, 194
——, ——, apparatus, A simple, 75
——, ——, Bilateral, 37
——, ——, Contraindications to the administration of, 229
——, ——, Diagnostic, 60
——, ——, Immune reactions with, 108
——, ——, Importance of exact measurement of intrapleural pressure in, 195
——, ——, in pulmonary tuberculosis, 101
——, ——, —— treatment of hemoptysis, 167
——, ——, Oxygen or carbon dioxide for initial, 229
——, ——, pleural cavity in, Investigation of the, 229
——, ——, —— effusion on the healthy side in, 93
——, ——, Recovery of respiratory capacity after, 196
——, ——, Spontaneous pneumothorax complicating, 108
——, ——, therapy, 194
——, ——, treatment, Value of, 101
Pneumothorax, Cauterization of adhesions in, 121
——, Hernia of the pleura complicating, 27
—— in an infant, Complete, 146
——, Induced, 116
——, Spontaneous, 94
——, ——, complicating artificial pneumothorax, 108
——, ——, in an infant, Case of, 224
Pneumothorax, Therapeutic, in exudative pleurisy, 37
——, ——, Multiple fluid collections in, 37
——, ——, pleural affusions in, Management of, 121
——, ——, Severing adhesions impeding, 167
Poehlmann, O. Friedmann's vaccine in pulmonary tuberculosis, 234
Poetz, T. Vaginal tuberculosis, 112
Poisoning, Chronic gas, and pulmonary tuberculosis, 11
Poland, tuberculosis in, struggle against, The, 240
Ponndorf tuberculin treatment in pulmonary tuberculosis, Therapeutic value of the, 205
Porter, G. D. Tuberculosis in Canada, 44
Postural rest for pulmonary tuberculosis, 36
Pottenger, F. M. Relative value of laboratory and clinical methods in tuberculosis, 218
Pott's disease, Brown-Sequard's syndrome in, 63
—— ——, Dyspepsia from, 110
—— ——, suboccipital, Mastoiditis and, 96
Practitioner, Accredited herd plan and the, 169
——, Coöperative eradication campaign and the, 15
——, Treatment of surgical tuberculosis by the, 202
Pratt, J. H. The public health nurse in the campaign, 138
Predisposition to bone and joint tubercle, Stigmata of, 85
—— —— tuberculosis, What the war has taught with regard to, 47
Pregnancy in tuberculosis, 12
Preiss, L. Tuberculin in determining activity, 188
Preparation of vaccines, ultraviolet rays in the, The use of, 122
Pressure, intrapleural, in artificial pneumothorax, Importance of exact measure ment of, 195
Prest, E. E. Calcium in pulmonary tuberculosis, 102
——, ——. ——. Fever in tuberculosis, 188

Presumption of tuberculosis from external stigmata, 58
Presumptive evidence furnished by the habitus and the skin, 92
Pretuberculous state in infancy, Study and treatment of the, 145
Prevention of pulmonary tuberculosis, Statistics on the, 66
—— —— tuberculosis in the United States, 172
Preventive of tuberculosis, Cure or, 132
Preventoriums, Need of assistance for, 237
Primary tuberculosis of the bladder, 29
—— —— —— —— female genital organs, Experimental research on, 30
—— —— —— —— testicle, 97
—— —— —— —— thyroid, 61
Problem, factory dust, Control of the, 17
——, —— ——, Industrial tuberculosis and the, 47
—— of tuberculosis, The real, 174
Problems, Tuberculosis, in state hospital practice, 41
Prognosis and antecedent tuberculosis of ancestors or patients themselves, 99
—— of pulmonary tuberculosis, 150
—— —— —— ——, Râles in the, 241
—— —— tuberculosis in infancy, Diagnosis and, 87
Prognostic classification of pulmonary tuberculous lesions, A, 209
—— significance of the cutaneous reaction to old tuberculin and to partial antigens in tuberculosis, The, 209
Proliferative phthisis, Differential diagnosis of caseous pneumonia and, 185
Propaganda, tuberculosis, The film for, 41
Prophylactic work, Tuberculosis, in Norway, 239
Prophylaxis in tuberculosis, 14
——, Petruschky's, 241
——, Social, against tuberculosis, 84
——, ——, War and, 2
——, Specific, of tuberculosis, 241
——, tuberculosis, Essentials in, 237
——, ——, in Argentina, Organization of, 240
——, ——, —— Italy, Suggestions for, 238
——, ——, —— Switzerland, Organization of, 238
Prospect, Tuberculosis: retrospect and, 131
Pseudotuberculosis due to disease of the upper air passages, 156
——, Psychogenic, 111
Psychogenic pseudotuberculosis, 111
Psychology of the tuberculous, 100
Public, Enlightening the, 1
—— health nurse in the campaign, The, 138
Public Health Service forced to transfer tuberculosis patients to the east, 4
Public tuberculosis service, 74
Pulmonary and glandular tuberculosis in children, Radiologic diagnosis of, 90
—— —— intestinal tuberculosis, X-ray treatment of, 123
—— —— laryngeal tuberculosis, Light treatment of, 229
—— botryomycosis, 99
—— cavities in tuberculosis, Certain symptomatological aspects of, 25
—— disease, Paratuberculous, 224
—— hypertrophic osteoarthropathy, Secondary, 63
—— sequellae of influenza, 72
—— silicosis, 62
—— syphilis, 115
—— —— simulating tuberculosis, 115
—— tubercle of infancy, The, 177
Pulmonary tuberculosis, active, Involvement of genitourinary tract in, 112
—— ——, Ambard's coefficient in, 186
—— ——, Apical respiratory insufficiency and the diagnosis of, in adults, 57
—— ——, Artificial pneumothorax in, 101
—— ——, Axillary lymph node tuberculosis in, 158
—— ——, Blood transfusion, 106
—— ——, Calcium in, 102
—— ——, Chest wounds and, 49
—— ——, Chondroturia in, 142
—— ——, chronic, and hyperthyroidism, Blood sugar and basal metabolism findings in, 186
—— ——, —— gas poisoning and, 11
—— ——, —— tonsillitis as a source of mixed infection in, 183
—— ——, ——, with few symptoms, 56
—— ——, Creatinin in, 116
—— ——, Deaths and death rates from, in New York City and State, 4, 82
—— ——, Diagnosis of, 68
—— ——, —— —— active, 21

Pulmonary tuberculosis, Diseased tonsils and, 9
—— ——, Early diagnosis of, 184
—— ——, ——, Treatment of, 37
—— ——, Etiologic factors in, 8
—— ——, Friedmann's vaccine in, 234
—— ——, Glandular and, 69
—— ——, grave cases of, The treatment of, with partial antigens, 38
—— ——, heart in early, The, 195
—— ——, Hemorrhages into the liver in, 52
—— ——, Housing conditions *vs.* food as factors in the increased incidence of, 215
—— —— in cases of surgical tuberculous lesions, 225
—— —— —— childhood, 10
—— —— —— infants, Contagiousness of, 215
—— —— —— ——, Open, 178
—— —— —— New York City and State, Deaths and death rates from, 4, 82
—— —— —— the aged, 144
—— —— —— —— Senegalese, 45
—— ——, Influenza and, 216
—— ——, Latent, in its disguises, 55
—— ——, local and, treatment of, Combined X-ray and artificial light, 231
—— ——, Lung wounds and, 49
—— ——, Misleading belief regarding, 55
—— ——, moderately advanced, The care of, 37
—— ——, Morphology of the sputum in, 20
—— —— mortality of large U. S. cities, 134
—— —— —— since 1914, 302
—— ——, mycosis and spirochetosis, 161
—— ——, Nontuberculous complications of, 26
—— ——, pathology and treatment of empyema complicating, The, 192
—— ——, Postural rest for, 36
—— ——, Prognosis of, 150
—— ——, —— ——, Râles in the, 241
—— ——, Pütter's system of caring for those with, 229
—— ——, Recent methods of treating, 228
—— ——, Silica in, 79
—— ——, Smoking in, 153
—— ——, Statistics on the prevention of, 66
—— ——, Surgery in, 201
—— ——, surgical treatment of, Results of, 39
Pulmonary tuberculosis, Test of cure in, 209
—— ——, The anatomic forms of, 180
—— ——, —— blood pressure in, 142
—— ——, —— phrenic sign in, 153
—— ——, Therapeutic value of the Ponndorf tuberculin treatment in, 205
—— ——, treatment of, Artificial sunlight, 231
—— ——, —— ——, with partial antigens, 103
—— ——, Types of, under the X-rays, 68
—— ——, X-ray treatment of, 116
Pulmonary tuberculous lesions, A prognostic classification of, 209
Pupil in the diagnosis of early tuberculosis, Provoked inequality of the, 219
Purpura, Hemorrhagic, and tuberculosis, 30
Purwin, P., Murray, C., and McNutt, S. H. Tuberculosis of goats, 97
Pütter's system of caring for those with pulmonary tuberculosis, 229
Pyelitis, Tuberculosis of spine simulating, 28
Pynappel, M. W. The struggle against tuberculosis in Holland, 239

Quartz laryngeal mirror, The, 34
—— light, Scarlatinal rash after the use of, 51
Quasi-continuous temperature records in early diagnosis, 91
Questions relating to tuberculosis, Some, 131
Queyrat, E. Presumptive evidence furnished by the habitus and the skin, 92

Rabbits, Calcium and tuberculosis in, 102
Racial differences in tuberculosis, 18
Radiating the larynx with ultraviolet rays, 34
Radiation, ultraviolet, Effect of, on vitamines, 102
Radiologic diagnosis of pulmonary and glandular tuberculosis in children, 90
Radium and roentgen rays, Action of, on normal and diseased lymphoid tissue, 199
——, roentgen rays and, Treatment of tuberculous adenitis by, 166
—— treatment of tuberculous adenitis, 35
Ragot, A. The phrenic sign in pulmonary tuberculosis, 153
Râles, Classification of, 219
—— in the prognosis of pulmonary tuberculosis, 241

Ramond, F., and Jacquelin, C. Dyspepsia from Pott's disease, 110
Ramond, L. Tuberculous meningitis in adults, 160
Raphael, A. The Framingham experiment, 174
Raphael, T., and Eldridge, N. Creatinin in pulmonary tuberculosis, 116
Rash, Scarlatinal, after the use of quartz light, 51
Rautenberg, E., Contraindications to the administration of artificial pneumothorax, 229
Raw, N. Tuberculosis immunizing vaccine, 119
Rays, solar, The disinfecting power of the, upon tubercle bacilli, 50
——, ultraviolet, in the preparation of vaccines, The use of, 122
——, ——, Radiating the larynx with, 34
——, ——, The action of, on the cell, 122
——, visible light, Action of the, on the body temperature, 103
Reaction, Complement fixation, in tuberculosis, 154
——, cutaneous, to old tuberculin and to partial antigens in tuberculosis, The prognostic significance of the, 209
——, Percutaneous, with highly concentrated tuberculin, 220
——, Pirquet, Statistics of the, 59
——, Stability, of blood in tuberculosis, 154
——, The urochromogen, in surgical tuberculosis, 92
——, Tuberculin, during the menses, 93
——, ——, Inhibition of the, by serums, transudates and exudates, 205
——, ——, The nature of the, 187
Reactions, Immune, with artificial pneumothorax, 108
—— to tuberculin, Lymph node, 220
Records, temperature, in early diagnosis, Quasi-continuous, 91
Recovery of respiratory capacity after artificial pneumothorax, 196
Recreation centres, Tuberculosis, 138
Red blood corpuscles in the miliary tubercles of the spleen, The presence of, 52
Registration area, United States, 1919, Causes of death in, 4
Reinfection, Tuberculosis and, 49
Relation of childhood tuberculous infection to adult tuberculosis, 176
Relationship between Graves' disease and tuberculosis, 161
—— —— phlyctenulae and tuberculosis, Experimental contribution on the, 176
Relative value of laboratory and clinical methods in tuberculosis, 218
Remilly, Hartman, and Bergeret. Tuberculosis of the adnexa, 29
Renal tuberculosis, 113
—— —— and impacted pelvic calculus, 158
—— ——, Development of, 190
—— ——, Differential diagnosis of, 159
—— ——, Medical management of, 159
—— ——, Pathology of, 159
—— ——, Roentgen diagnosis of, 159
—— ——, Surgical treatment of, 159
—— ——, The laboratory diagnosis of, 190
Rendleman, W. H., and Marker, J. I. Primary tuberculosis of the thyroid, 61
Rénon, L. Scientific methods for obtaining tuberculosis morbidity and mortality statistics, 210
——, ——. Test of cure in pulmonary tuberculosis, 209
Rénsch, O. B., and Corper, H. J. Mustard gas and experimental tuberculosis, 73
——, ——. ——., Corper, H. J., and Gauss, H. Tuberculosis and experimental endothelial leucocytosis, 100
Rensoli, F., Fuentes, S., and Dávila. Vaccine treatment for tuberculosis, 74
Repeated hemoptysis caused by a calculus, 94
Report, Rhode Island State Sanatorium, 165
——, Trudeau Sanatorium, for 1920, 164
Resistance of the caterpillar to tubercle bacilli, 53
—— to tuberculosis, 100
Respiratory capacity after artificial pneumothorax, Recovery of, 196
—— insufficiency, Apical, and the diagnosis of pulmonary tuberculosis in adults, 57
Rest, Postural, for pulmonary tuberculosis, 36
Retrospect and prospect, Tuberculosis, 131
Rettig, F. Light dosage, 51
Reyn, A., and Ernst, N. Results of treatment of lupus vulgaris and surgical tuberculosis with artificial chemical light baths, 197

de Reynier, L., and Rossel, G. Pleural effusion on the healthy side in artificial pneumothorax, 93
Rhode Island State Sanatorium Report, 165
Rhodes, W. L. Diseased tonsils and pulmonary tuberculosis, 9
Ribadeau-Dumas, L. The pulmonary tubercle of infancy, 177
Richard, P. Study and treatment of the pretuberculous state in children, 145
Richardson, A. G. G. Bovine and human tuberculosis, 169
Rickets, treatment of, Ultraviolet ray, 232
Rickmann, H. Krysolgan chemotherapy, 234
Rietschel. The specificity of Friedmann's vaccine, 204
Rieux, J., and Bass. Complement fixation reaction in tuberculosis, 154
Right-sided pleuropulmonary lesion, Dextrocardia due to, 95
Rivers, W. C. Squint, lefthandedness and tuberculosis, 67
——, ——. ——. Stigmata of predisposition to bone and joint tubercle, 85
——, ——. ——. The drooping shoulder sign, 58
Riviere, C. Artificial pneumothorax, 167
Robertson, A. N. The future of the sanatorium, 175
Robertson, N. Statistics of tuberculosis institutions, 7
Robinson, W. The campaign against tuberculosis, 66
Rodents, small, Tuberculosis in, 99
Roentgen diagnosis of renal tuberculosis, 159
—— ray and tuberculosis in infants and children, 108
—— rays and radium, Treatment of tuberculous adenitis by, 166
—— ——, radium and, Action of, on normal and diseased lymphoid tissue, 199
Roentgenograms, The Dunham fan in, 24
Roentgenography of obscure bone lesions, 61
Rogers, J. B. Nitrous oxide-oxygen anesthesia in tuberculous animals, 86
——, ——. ——. Relation of contact to development of tuberculosis, 8
Rogers, L. Chaulmoogra oil in leprosy and tuberculosis, 168
Rolleston, H. Rôle of medical profession in prevention of tuberculosis, 235
Rollier, A. Heliotherapy in the Alps, 102
——, ——. Institutions for sun treatment, 103
——, ——. Sun treatment, 73
——, ——., and Rosselet, A. Contribution to the scientific study of heliotherapy and phototherapy, 50
Root, H. F., and Gray, H. Weight prediction, 140
Rosenblatt, J. Lower lobe tuberculosis, 138
——, ——., and Stivelman, B. P. Management of pleural effusions in therapeutic pneumothorax, 121
——, ——., —— ——, ——. ——. Multiple fluid collections in therapeutic pneumothorax, 37
Rossel, G., and de Reynier, L. Pleural effusion on the healthy side in artificial pneumothorax, 93
Rosselet, A., and Rollier, A. Contribution to the scientific study of heliotherapy and phototherapy, 50
Roubier, C. Brown-Sequard's syndrome in Pott's disease, 63
Ruggeri, E. The Martinotti vaccine for tuberculosis, 31
Rumania, Antituberculosis work in, 238
Rustichelli, V. Therapeutic pneumothorax in exudative pleurisy, 37
Ryssel, E. C. Anatomic investigations of tuberculosis in childhood, 52

Saathoff, L. The real problem of tuberculosis, 174
Sahli, H. Intracutaneous tuberculin treatment, 39
Salpingitis, Tuberculous, 70
Sanatoria, community, Heliotherapy of surgical tuberculosis and necessity of, for such patients, 230
—— for surgical tuberculosis, 38
—— —— —— ——, Necessity of foundation of, 105
——, German, Heliotherapy in, 123
——, tuberculosis, Building, 136
——, ——, Standard, 137
Sanatorium care of tuberculous soldiers, 152
——, Dispensary, and the tuberculosis officer, 43

Sanatorium, first, The, 175
——, future of the, The, 175
——, Metropolitan Life Insurance Company, 85
—— treatment under county councils, 137
Sartory, A., Pellissier, P., and Scheffler, L. Sodium silicate by the vein, 80
Sauerbruch, F. Surgery in pulmonary tuberculosis, 201
Sayé, L. Present efforts against tuberculosis in Catalonia, 238
Scarlatinal rash after the use of quartz light, 51
Schäcker. Ultraviolet light treatment of heart and vascular diseases, 198
Scheffler, L., Sartory, A., and Pellissier, P. Sodium silicate by the vein, 80
Schemes, Why tuberculosis, fail, 2
Schiff and Eliasberg. Diagnostic value of intracutaneous injection of patient's own urine, 60
Schmidt, E. O. Surgical tuberculosis, 226
Schmincke, A. The anatomic forms of pulmonary tuberculosis, 180
Schnaudigel, O. Ocular tuberculosis treated with a gold preparation, krysolgan, 208
Schoenstein, E. Case of spontaneous pneumothorax in an infant, 224
School, Hospital, for surgical tuberculosis in children, 76
Schools, Open-air, during 1919, 76
Schroeder, E. C. Significance of types of tubercle bacillus, 143
v. Schrötter. Theory and practice of light treatment of tuberculosis, 230
Schults-Tigges, H. The treatment of grave cases of pulmonary tuberculosis with partial antigens, 38
Schulz, E. Chronic tonsillitis as a source of mixed infection in pulmonary tuberculosis, 183
Schuster. Disinfection of tuberculous sputum, 155
Schweizer, G. Surgery of tuberculous joints contrasted with heliotherapy, 230
Scientific methods for obtaining tuberculosis morbidity and mortality statistics, 210
Scrofula, The old and new conceptions of, 94
Seabold, P. S. The Dunham fan in roentgenograms, 24
Seashore, Treatment of tuberculosis at the, 78
Secher, K., and Larsen, R. B. Sochanski's method of differentiating exudates from transudates, 186
Secondary pulmonary hypertrophic osteoarthropathy, 63
Seiter, O. Chest wounds and pulmonary tuberculosis, 49
Selter, H. The nature of the tuberculin reaction, 187
Senegalese, Pulmonary tuberculosis in the, 45
Sequellae of influenza, Pulmonary, 72
Serbia, tuberculosis in, struggle against, The, 238
Serum agglutination of tubercle bacillus, 222
Serums, transudates and exudates, Inhibition of the tuberculin reaction by, 205
Severing adhesions impeding therapeutic pneumothorax, 167
Sex, Tuberculosis mortality in New York City according to, 213
Shoulder sign, The drooping, 58
Sign, early, of tuberculous lesion, Tenderness in muscles as an, beneath, 25
——, phrenic, in pulmonary tuberculosis, The, 153
——, The drooping shoulder, 58
Significance of tracheobronchial adenopathy, Diagnosis and, 69
Signs, physical, Symptoms vs., in early diagnosis, 56
Silica in pulmonary tuberculosis, 79
Silicate, Sodium, by the vein, 80
Silicosis, Pulmonary, 62
Simic, S. X-ray treatment of tuberculous lymph nodes, 199
Simon, S. The heart in early pulmonary tuberculosis, 195
Sinus disease, accessory, Bronchiectasis and, 130
Skin as an organ of internal secretion, The, 191
——, Light, and tuberculosis, 124
——, Presumptive evidence furnished by the habitus and the skin, 92
—— tuberculosis in cattle, 170
——, Tuberculosis of the, 128
Slater, S. A. Interesting things about tuberculosis, 1

Slesinger, E. G. Unusual cases of abdominal tuberculosis, 158
Slight fever in the tuberculous, Significance of, 59
Small rodents, Tuberculosis in, 99
Smith, C. H. Diagnosis of tuberculosis in childhood, 219
Smoke abatement, The influence of, upon tuberculosis, 65
Smoking in pulmonary tuberculosis, 153
Sobel, J., and Baker, S. J. Open air schools during 1919, 76
Sochanski's method of differentiating exudates from transudates, 186
Social prophylaxis against tuberculosis, 84
—— prophylaxis, War and, 2
Sodium morrhuate, Treatment of tuberculosis with, 80
—— silicate by the vein, 80
Solar rays, The disinfecting power of the, upon tubercle bacilli, 50
Soldiers, Tuberculosis in, 18
——, tuberculous, Sanatorium care of, 152
Solis-Cohen, M. Latent pulmonary tuberculosis in its disguises, 55
——, ——. Tuberculin treatment for children, 30
Sonne, C. Action of the visible light rays on the body temperature, 103
Sorrel, E. Tuberculous bone and joint disease, 96
Soul of the consumptive, The, 1
South Sea Colonies, Tuberculosis in the, 214
Specificity of Friedmann's vaccine, The, 204
—— —— the Besredka antigen, 143
Spectrum, Antagonism between different parts of the, 122
Spence, R. C., and Wollstein, M. Tuberculosis in infants and young children, 88
Spencer, O. M. Control of air dustiness, 16
Spengler's immune bodies, 31
Spicer, F. W. Chronic gas poisoning and pulmonary tuberculosis, 11
Spina ventosa, Nontuberculous, 28
Spine, Tuberculosis of, simulating pyelitis, 28
——, —— —— the, Surgical treatment of, 202
Spirochetosis, Bronchopulmonary, 192
——, Pulmonary tuberculosis, mycosis and, 160
Spleen, miliary tubercles of the, The presence of red blood corpuscles in the, 52
Spontaneous pneumothorax, 94
—— —— complicating artificial pneumothorax, 108
—— —— in an infant, Case of, 224
Spread of the tubercle bacillus, Factors in the, 176
Sputum, Albumin in, aid in early diagnosis, 154
——, ——, lymphocytes and tubercle bacilli in the, 92
——, examination for tubercle bacilli in the, The new concentration methods for, 155
——, Isolation of tubercle bacilli from, by Petroff's method, 224
——, Morphology of the, in pulmonary tuberculosis, 20
—— to child, Course of the tubercle bacillus from, 89
——, tuberculous, Bacterial flora of, 20
——, ——, Disinfection of, 155
Squint, lefthandedness and tuberculosis, 67
Stability reaction of blood in tuberculosis, 154
Staining the tubercle bacillus, A new method of, 93
Standard tuberculosis sanatoria, 137
Standardization of tuberculin, 72
State hospital practice, Tuberculosis problems in, 41
Statistics of the Pirquet reaction, 59
—— —— tuberculosis institutions, 7
—— on infant and tuberculosis mortality during the eighteenth century: the first census in Vienna, 43
—— —— the prevention of pulmonary tuberculosis, 66
——, Scientific methods for obtaining tuberculosis morbidity and mortality, 210
——, Tuberculosis, New York City, May-July, 1921, 213
——, Vital, for the year 1920 in New York City, 7
Steindler, A. Treatment of surgical tuberculosis, 104
Stenstrom, O., and Barthel, C. Action of prolonged pasteurization on tubercle bacilli in milk, 72

Stenzler, W. Tuberculosis of the lachrymal glands, 61
Stephan, S. X-ray treatment of peritoneal and genital tuberculosis, 123
Sterilization of the throats of diphtheria carriers with ultraviolet rays, 198
Stewart, D. A. Infection in tuberculosis, 107
——, ——. ——. Tuberculosis: retrospect and prospect, 131
Stigmata, external, Presumption of tuberculosis from, 58
—— of predisposition to bone and joint tubercle, 85
Stivelman, B. P. Induced pneumothorax, 116
——, ——. ——., and Rosenblatt, J. Management of pleural effusions in therapeutic pneumothorax, 121
——, ——. ——., —— ——, ——. Multiple fluid collections in therapeutic pneumothorax, 37
Stokes, J. H. Erythema nodosum and tuberculosis, 64
——, ——. ——. Tuberculosis of the skin, 128
Stoyanovitch, L. The struggle against tuberculosis in Serbia, 238
Stradner, F. Percutaneous reaction with highly concentrated tuberculin, 220
Striae distensae in consumptives, 142
Strobel, J. E. Bacterial flora of tuberculous sputum, 20
Stromeyer, K. The treatment of surgical tuberculosis with X-ray, 35
Strubell, A. Specific prophylaxis of tuberculosis, 241
——, ——. Tubar, another tuberculosis vaccine, 207
——, ——., and Strubell, Theodora. Tuberculosis immune milk, 224
Strubell, Theodora, and Strubell, A. Tuberculosis immune milk, 224
Study and treatment of the pretuberculous state in infancy, 145
Stuhl, C. Tuberculin in the treatment of pleurisy with effusion, 206
Stuteville, O. R. An unusual case of tuberculosis in an infant, 178
Subcutaneous tuberculin test, The, 188
Suboccipital Pott's disease, Mastoiditis and, 96
Sugar, Blood, and basal metabolism findings in chronic pulmonary tuberculosis and hyperthyroidism, 186
Sulphur dioxide and tuberculosis, 208
Sun treatment, 73
—— ——, Institutions for, 103
Sundt, H. Tuberculous hip disease and its simulants, 127
Sunlight treatment, Artificial, of pulmonary tuberculosis, 231
—— ——, ——, —— tuberculosis in guinea pigs, 231
Surgery in pulmonary tuberculosis, 201
—— of tuberculous joints contrasted with heliotherapy, 230
Surgical thoracic tuberculosis, Two cases of, 121
—— treatment of pulmonary tuberculosis, Results of, 39
—— —— —— renal tuberculosis, 159
—— —— —— tuberculosis, 199, 200
—— —— —— —— of the spine, 202
Surgical tuberculosis, 28, 63, 226
—— ——, Complement fixation in, 154
—— ——, Diagnostic value of tuberculin in, 110
—— ——, Heliotherapy in, 35, 230
—— ——, —— of, and necessity of community sanatoria for such patients, 230
—— —— in children, Hospital school for, 76
—— —— —— ——, The treatment of, by venous hyperemia, 148
—— —— —— infants, 88
—— ——, Influence of trauma on, 86
—— ——, Institutional treatment in, 164
—— ——, lupus vulgaris and, Results of treatment of, with artificial chemical light baths, 197
—— ——, Mixed infection in, 71
—— ——, Nonoperative treatment of, 168
—— ——, operative treatment of, The, 120
—— ——, Sanatoria for, 38
—— ——, —— ——, Necessity of foundation of, 105
—— ——, Tebelon in the treatment of, 207
—— ——, The treatment of, with X-ray, 35
—— ——, —— urochromogen reaction in, 92
—— —— treated by the Friedmann vaccine, 205
—— ——, Treatment of, 104
—— ——, —— ——, by the practitioner, 202
—— ——, —— ——, with turtle bacilli, 202

Surgical tuberculous lesions, Pulmonary tuberculosis in cases of, 225
Survey, health, Cleveland, 44
Sutherland, H. G. Early diagnosis of pulmonary tuberculosis, 184
Sweden, tuberculosis in, struggle against, The, 240
Switzerland, tuberculosis prophylaxis in, Organization of, 238
Syllaba, L. Diagnostic methods of bacillary infection, 222
Symes-Thompson, H. E. History of tuberculosis, 151
Symptomatological aspects of pulmonary cavities in tuberculosis, Certain, 25
Symptoms, Chronic pulmonary tuberculosis with few, 56
—— of tuberculous meningitis in adults, The, 114
—— —— ulcerating pulmonary tuberculosis in infants, The general, 88
—— *vs.* physical signs in early diagnosis, 56
Syncopal accidents, Localized pleural irritation and, 109
Syndrome, Brown-Sequard's, in Pott's disease, 63
Syphilis and tuberculosis, 162
——, hereditary, Tuberculous meningitis and, 227
——, Light in the treatment of, 198
——, Pulmonary, 115
——, ——, simulating tuberculosis, 115

Takeuchi, K. Albumin, lymphocytes and tubercle bacilli in the sputum, 92
Tambe, G. R. Treatment of tuberculosis with sodium morrhuate, 80
Tanner, F. W., and Ward, C. B. Bacteria on coins, 217
Tchabotine, S. The action of the ultraviolet rays on the cell, 122
Tebelon in the treatment of surgical tuberculosis, 207
Telford, E. D. Institutional treatment in surgical tuberculosis, 164
Temperature, body, Action of the visible light rays on the, 103
—— records in early diagnosis, Quasi-continuous, 91
Tenderness in muscles as early sign of tuberculous lesion beneath, 25
Tenderness over tuberculous apex, 57
Test, Auto-urine, for active tuberculosis, 107
—— for tuberculosis, Auto-urine and auto-serum biologic, 26
—— of cure in pulmonary tuberculosis, 209
—— —— the tuberculous, Fatigue as a, 140
——, Pirquet, Diagnostic value of, 220
——, tuberculin Intracutaneous, in cattle, 149
——, ——, of cattle and tuberculosis control, 149
——, ——, The subcutaneous, 188
Testicle, Primary tuberculosis of the, 97
Tests, tuberculin, Combination, in cattle, 149
Therapeutic pneumothorax in exudative pleurisy, 37
—— ——, Multiple fluid collections in, 37
—— ——, pleural effusions in, Management of, 121
—— ——, Severing adhesions impeding, 167
—— studies, Light, with Fürstenau's actinometer, 34
—— value of the Ponndorf tuberculin treatment in pulmonary tuberculosis, 205
Therapy, Artificial pneumothorax, 194
——, light, Double, 34
——, Vaccine, of tuberculosis, 30
Thielmann, H. Tuberculosis of the penis, 64
Thomalla, C. The film for tuberculosis propaganda, 41
Thoracic tuberculosis, Two cases of surgical, 121
Thoracotomy, Extrapleural, 203
Throats of diphtheria carriers, Sterilization of the, with ultraviolet rays, 198
Thyroid, Primary tuberculosis of the, 61
Tobias, W. Housing conditions vs. food as factors in the increased incidence of pulmonary tuberculosis, 215
Tonsillitis, Chronic, as a source of mixed infection in pulmonary tuberculosis, 183
Tonsils, Diseased, and pulmonary tuberculosis, 9
——, Tuberculosis of, 125
Töppich, G. Experimental immunity effects of Friedmann's vaccine, 234
Toxins, Tuberculous, as causes of disease, 216
Tracheobronchial adenopathy, Diagnosis and significance of, 69
—— glands, tuberculosis of the, in children, Early diagnosis of, 91

Training, Educational, in tuberculosis, 42
Tranjen, I. Friedmann's remedy in the light of Ehrlich's side chain theory, 234
Transfusion, Blood, in pulmonary tuberculosis, 106
Transudates and exudates, Inhibition of the tuberculin reaction by serums, 205
——, Sochanski's method of differentiating exudates from, 186
Traugott, K. Artificial sunlight treatment of pulmonary tuberculosis, 231
Trauma and tuberculosis, 106
——, Influence of, on surgical tuberculosis, 86
Trawick, J. D. Tuberculous disease of the hip joint, 96
Treating pulmonary tuberculosis, Recent methods of, 228
Treatment, artificial pneumothorax, Value of, 101
——, Artificial sunlight, of pulmonary tuberculosis, 231
——, —— ——, of tuberculosis in guinea pigs, 231
——, Friedmann's, of tuberculosis, 233
——, Institutional, in surgical tuberculosis, 164
——, Intracutaneous tuberculin, 39
——, light, A formula for, 194
——, —— and climatic, of tuberculosis, 124
——, ——, of bone and joint tuberculosis, 230
——, ——, —— tuberculosis, 229
——, ——, —— venereal diseases, The, 197
——, Mechanical, of tuberculosis, 36
——, Nonoperative, of surgical tuberculosis, 168
—— of chronic tuberculosis, Cerium salts in the, 101
—— —— early pulmonary tuberculosis, 37
—— —— empyema complicating pulmonary tuberculosis, The pathology and, 192
—— —— grave cases of pulmonary tuberculosis with partial antigens, The, 38
—— —— hemoptysis, 79
—— —— ——, Artificial pneumothorax in, 167
—— —— ——, Camphor and emetine in the, 79
—— —— laryngeal tuberculosis, 231
—— —— —— —— with the arc light, 123
Treatment of local and pulmonary tuberculosis, Combined X-ray and artificial light, 231
—— —— lupus vulgaris and surgical tuberculosis with artificial chemical light baths, Results of, 197
—— —— —— —— with Friedmann's vaccine, 205
—— —— —— with iodine exposed to X-rays, 233
—— —— peritoneal tuberculosis with X-rays, Conservative, 232
—— —— pleurisy with effusion, Tuberculin in the, 206
—— —— pulmonary and laryngeal tuberculosis, Light, 229
—— —— —— tuberculosis with partial antigens, 103
—— —— surgical tuberculosis, 104
—— —— —— —— by the practitioner, 202
—— —— —— —— in children by venous hyperemia, The, 148
—— —— —— ——, Tebelon in the, 207
—— —— —— —— with turtle bacilli, 202
—— —— —— —— —— X-ray, The, 35
—— —— syphilis, Light in the, 198
—— —— the pretuberculous state in infancy, Study and, 145
Treatment of tuberculosis, 163
—— —— —— at the seashore, 78
—— —— ——, Chaulmoogra oil in the, 124
—— —— —— in Great Britain, Control and, 172
—— —— ——, light, Theory and practice of, 230
—— —— —— of the bones and joints, 105
—— —— —— —— —— kidney, 105
—— —— —— with partial antigens (Deycke-Much), 206
—— —— —— —— sodium morrhuate, 80
—— —— —— —— the Deycke-Much partial antigens, The leucocytes during the, 206
Treatment of tuberculous adenitis, 166
—— —— —— —— by roentgen rays and radium, 166
—— —— —— arthritis and osteomyelitis, X-rays in the, 233
—— —— —— peritonitis, 231
Treatment, operative, of surgical tuberculosis, The, 120

Treatment, Radium, of tuberculous adenitis, 35
——, Sanatorium, under county councils, 137
——, Sun, 73
——, ——, Institutions for, 103
——, surgical, of pulmonary tuberculosis, Results of, 39
——, ——, —— renal tuberculosis, 159
——, ——, —— tuberculosis, 199, 200
——, ——, —— —— of the spine, 202
——, The Friedmann, 104
——, Tuberculin, 32
——, ——, for children, 30
——, Ultraviolet light, of heart and vascular diseases, 198
——, —— ray, of rickets, 232
——, Vaccine, of tuberculosis, 74
——, X-ray, in children, The results of, 148
——, ——, of laryngeal tuberculosis, 122
——, ——, —— peritoneal and genital tuberculosis, 123
——, ——, —— —— tuberculosis, 123
——, ——, —— pulmonary and intestinal tuberculosis, 123
——, ——, —— —— tuberculosis, 116
——, ——, —— tuberculosis, 199
——, ——, —— tuberculous laryngitis, 102
——, ——, —— —— lymph nodes, 74, 199
——, ——, —— —— lymphadenitis, 78
Tropical bronchopulmonary mycosis, 130
Trostler, I. S. X-ray treatment of tuberculous lymphadenitis, 78
Trudeau, F. B. Râles in the prognosis of pulmonary tuberculosis, 241
Trudeau Sanatorium report for 1920, 164
Tubal tuberculosis, Genesis of, 112
Tubar, another tuberculosis vaccine, 207
Tubercle bacilli, Albumin, lymphocytes and, in the sputum, 92
—— ——, Cold-blooded, and Friedmann's vaccine, 204
—— ——, Culture of, on egg yolk, 144
—— ——, Effect of amino acids on the growth of, 20
—— ——, Excretion of, in bile, 98
—— —— in milk, Action of prolonged pasteurization on, 72
—— —— —— the blood of tuberculous patients, 93
—— —— —— —— sputum, The new concentration methods for examination for, 155
Tubercle bacilli, Influence of organ extracts on, 207
—— ——, Isolation of, from sputum by Petroff's method, 224
—— ——, low virulent, turtle and other acid-fast bacilli, Antigenic property of, 155
—— ——, nonvirulent and nontoxic living, Immunization by, 39
—— ——, Properties of, attenuated by bile, 223
—— ——, Resistance of the caterpillar to, 53
—— ——, The detection of, by dark field illumination, 186
—— ——, —— disinfecting power of the solar rays upon, 50
Tubercle bacillus, Alcohol extracts of the, as antigens, 143
—— —— as fat fungus, 19
—— ——, avian, The, 223
—— ——, Course of the, from sputum to child, 89
—— ——, Factors in the spread of the, 176
—— ——, Serum agglutination of, 222
—— ——, staining the, A new method of, 93
—— ——, The influence of chaulmoogra oil on the, 74
—— ——, types of, Significance of, 143
Tubercle, bone and joint, Stigmata of predisposition to, 85
—— of infancy, The pulmonary, 177
Tubercles, miliary, of the spleen, The presence of red blood corpuscles in the, 52
Tuberculin, diagnostic, A, 187
——, highly concentrated, Percutaneous reaction with, 220
—— hypersensitiveness, 117
—— in determining activity, 188
—— —— epilepsy, 124
—— —— surgical tuberculosis, Diagnostic value of, 110
—— —— the treatment of pleurisy with effusion, 206
—— injection, intracutaneous, as revealed by the capillary microscope, The, 142
—— inunction, Diagnostic, 188
——, Lymph node reactions to, 220
—— reaction during the menses, 93
—— ——, Inhibition of the, by serums, transudates and exudates, 205
—— ——, The nature of the, 187

Tuberculin, Standardization of, 72
—— test, Intracutaneous, in cattle, 149
—— —— of cattle and tuberculosis control, 149
—— ——, The subcutaneous, 188
—— tests, Combination, in cattle, 149
——, The prognostic significance of the cutaneous reaction to old, and to partial antigens in tuberculosis, 209
—— treatment, 32
—— —— for children, 30
—— ——, Intracutaneous, 39
—— ——, Ponndorf, Therapeutic value of the, in pulmonary tuberculosis, 205
Tuberculinization of babies, 75
Tuberculosis, Abdominal, in children, 179
——, ——, Unusual cases of, 158
——, active, Auto-urine test for, 107
——, adult, in Czecho-Slovakia, Clinical diagnosis of, 218
——, ——, Relation of childhood tuberculous infection to, 176
—— after industrial accidents, 153
—— among Catholic nursing orders, 214
—— —— negroes in New York City, 214
—— —— the children of Munich, The war and, 178
—— and arteriosclerosis, 163
—— —— cancer of the lung, 62
—— —— decalcification, 116
—— —— experimental endothelial leucocytosis, 100
—— —— reinfection, 49
——, antecedent, of ancestors or patients themselves, Prognosis and, 99
—— antibodies in the aged, 53
—— Association, Haverhill, 138
——, Atypical, with Mikulicz's syndrome, 160
——, Auto-urine and autoserum biologic test for, 26
——, Axillary lymph node, in pulmonary tuberculosis, 158
——, Blood lipases in, 221
——, Bone, 127
——, Bovine and human, 169
—— ——, Complement fixation in, 98
——, ——, Eradication of, 15
——, ——, No compromise with, 168
——, Calcium and, in rabbits, 102
——, Campaign against, in Pennsylvania, 84
Tuberculosis, Campaign against, The, 66
—— ——, Coöperative, 42
—— ——, Knights of Columbus in, 106
——, cattle, Control of, 116
——, Certain symptomatological aspects of pulmonary cavities in, 25
——, Chaulmoogra oil in leprosy and, 168
——, Chemotherapy of, with collargol and colloidal copper, 235
——, chronic, treatment of, Cerium salts in the, 101
——, Classification of, 40
——, Climate and weight in, 193
——, —— in, 104
——, Complement fixation reaction in, 154
——, Conglomerate, of the heart, 62
—— contagious, Is, 9
—— control, 135
——, —— and treatment of, in Great Britain, 172
——, —— of, Fundamental factors in the, 152
——, —— ——, The, 174
—— ——, Pioneer work in, 16
—— ——, Tuberculin test of cattle and, 149
——, Controlling, 41
——, Courses in, 67
——, Cure or preventive of, 132
—— death rate for November, 1920, Low, 7
—— —— —— still declining, 173
——, Dental caries and, 94
——, development of, The influence of X-rays on the, 122
——, diagnosis of, Value of inspection in, 21
——, Differential diagnosis of, 22
——, Diffusion of, throughout the world, 211
——, Dispensary control of, 136
——, early case of, Value of finding the, 183
——, ——, diagnosis of, Provoked inequality of the pupil in the, 219
——, Educational training in, 42
——, Epidemiology of, 130
—— eradication among cattle in Pennsylvania, 98
——, Erythema nodosum and, 64
——, erythrocyte volume in, The, 182
——, Experimental contribution on the relationship between phlyctenulae and, 176
——, ——, Mercury compounds in the chemotherapy of, 33

Tuberculosis, Experimental miliary, The endothelium in, 52
——, ——, Mustard gas and, 73
——, Feeblemindedness and, 64
——, Fever in, 188
——, Gassing *vs.*, 139
——, gastric, Case of, 189
——, Genital, 29
——, ——, in the male, 29
——, Graves' disease and, Relationship between, 161
——, Hemorrhagic purpura and, 30
——, Heredity in, 47
——, History of, 151
——, Humoral antibodies in, 182
—— immune milk, 224
——, immunity in, Rôle of, 118
——, —— to, 16
—— immunizing vaccine, 119
—— in a parish, 134
—— —— an infant, An unusual case of, 178
—— —— Austria, 4
—— —— Canada, 44
—— —— Catalonia, Present efforts against, 238
—— —— childhood, Anatomic investigations of, 52
—— —— ——, Apex, hilum and lower lobe lesions of, 89
—— —— ——, Diagnosis of, 219
—— —— children, 108
—— —— ——, Complement fixation for, 90
—— —— ——, Radiologic diagnosis of pulmonary and glandular, 90
—— —— France struggle against, The, 237
—— —— Germany, 81
—— —— guinea pigs, treatment of, Artificial sunlight, 231
—— —— infancy, Diagnosis and prognosis of, 87
—— —— infants and children, Roentgen ray and, 108
—— —— —— —— young children, 88
—— —— ——, Open pulmonary, 178
—— —— large communities, Fight against, 40
—— —— milk goats, 97
—— —— New York City, 66, 82
—— —— nurslings, 144
—— —— old age, 179
—— —— Serbia, struggle against, The 238
Tuberculosis in small rodents, 99
—— —— soldiers, 18
—— —— the South Sea Colonies, 214
—— —— Wales, Campaign against, 3
——, Industrial, and the factory dust problem, 47
——, infantile, The alizarin test in, 222
——, Infection in, 107
——, Infectivity of, 48
——, Influenza and, 12, 162
—— institutions, Statistics of, 7
——, Interesting things about, 1
——, intraäbdominal, Inguinal lymph node involvement in, 189
——, Is lupus erythematosus due to, 129
——, Laryngeal, 156
——, ——, Heliotherapy in, 194
——, ——, Nerve block in, 126
——, ——, pulmonary and, Light treatment of, 229
——, ——, Treatment of, 231
——, ——, —— ——, of, with the arc light, 123
——, ——, X-ray treatment of, 122
——, Laryngopulmonary, 125
——, Latent, 180
——, Light and climatic treatment of, 124
——, ——, skin and, 124
——, local and pulmonary, treatment of, Combined X-ray and artificial light, 231
——, Lower lobe, 138
——, Lymphadenoma and, 161
——, Mechanical treatment of, 36
——, Medical education in, 174
——, Metabolism and diet in, 54
——, —— in, 53
——, —— —— grave, afebrile, 53
——, Methylene blue excretion in, 183
——, morbidity and mortality statistics, Scientific methods for obtaining, 210
——, Mortality and morbidity from, in the United States, 171
——, —— from, in Denmark, 82
—— —— in New York City according to sex, 213
—— —— —— Vienna before and after the war, 81
—— ——, Statistics on infant and, during the eighteenth century: the first census in Vienna, 43
—— movement, By-products of the, 174

Tuberculosis, New York City deaths from, since 1898, 133
——, ocular, Phototherapy of, 196
——, ——, treated with a gold preparation, krysolgan, 208
—— of children, 89
—— —— goats, 97
—— —— horses, 150
—— —— knee joint, 128
—— —— Meckel's diverticulum, 62
—— —— myocardium, 62
—— —— spine simulating pyelitis, 28
—— —— the adnexa, 29
—— —— —— anterior vaginal wall, 160
—— —— —— bladder, Primary, 29
—— —— —— bones and joints, Treatment of, 105
—— —— —— ear, 26
—— —— —— heart, 95
—— —— —— ——, Conglomerate, 62
—— —— —— ——, Tumor-like, 62
—— —— —— joints, Unusual forms of, 191
—— —— —— kidney, Chronic, 70
—— —— —— —— in women, 70
—— —— —— ——, Treatment of, 105
—— —— —— lachrymal glands, 61
—— —— —— lip, 44
—— —— —— middle ear, 157
—— —— —— penis, 64
—— —— —— peritoneum, Healed case of, 95
—— —— —— ——, Pedunculated, 190
—— —— —— skin, 128
—— —— —— spine, Surgical treatment of, 202
—— —— —— testicle, Primary, 97
—— —— —— thyroid, Primary, 61
—— —— —— tracheobronchial glands in children, Early diagnosis of, 91
—— —— —— wrist, Operation for, 32
—— —— tonsils, 125
—— officer, Dispensary, sanatorium and, 43
——, Ozena and, 191
——, Pathology of the mediastinal lymph nodes in, 139
—— patients, General hospitals and, 137
—— ——, Public Health Service forced to transfer, to the east, 4
——, peritoneal and genital, X-ray treatment of, 123
——, ——, treatment of, Conservative, with X-rays, 232
Tuberculosis, peritoneal, X-ray treatment of, 123
——, Pleuropulmonary, and chronic tuberculous pericarditis, 95
——, predisposition to, What the war has taught with regard to, 47
——, Pregnancy in, 12
——, Presumption of, from external stigmata, 58
——, Prevention of, in the United States, 172
——, —— ——, Rôle of medical profession in, 235
——, primary, of the female genital organs, Experimental research on, 30
—— problems in state hospital practice, 41
—— propaganda, The film for, 41
—— prophylactic work in Norway, 239
—— prophylaxis, Essentials in, 237
——, —— in, 14
—— —— —— Italy, Suggestions for, 238
—— —— —— Switzerland, Organization of, 238
—— ——, Organization of, in Argentina, 240
Tuberculosis, pulmonary, active, Involvement of genitourinary tract in, 112
——, ——, Ambard's coefficient in, 186
——, —— and intestinal, X-ray treatment of, 123
——, —— laryngeal, Light treatment of, 229
——, ——, Apical respiratory insufficiency and the diagnosis of, in adults, 57
——, ——, Artificial pneumothorax in, 101
——, ——, Axillary lymph node tuberculosis in, 158
——, ——, Blood transfusion in, 106
——, ——, Calcium in, 102
——, ——, Chest wounds and, 49
——, ——, Chondroturia in, 142
——, ——, chronic, and hyperthyroidism, Blood sugar and basal metabolism findings in, 186
——, ——, —— gas poisoning and, 11
——, ——, —— tonsillitis as a source of mixed infection in, 183
——, ——, ——, with few symptoms, 56
——, ——, Creatinin in, 166
——, ——, Deaths and death rates from, in New York City and State, 4, 82
——, ——, Diagnosis of, 68
——, ——, —— —— active, 21
——, ——, Diseased tonsils and, 9
——, ——, Early diagnosis of, 184

Tuberculosis, pulmonary, Early, Treatment of, 37
——, ——, Etiologic factors in, 8
——, ——, Friedmann's vaccine in, 234
——, ——, Glandular and, 69
——, ——, grave cases of, The treatment of, with partial antigens, 38
——, ——, heart in early, The, 195
——, ——, Hemorrhages into the liver in, 52
——, ——, Housing conditions *vs.* food as factors in the increased incidence of, 215
——, ——, in cases of surgical tuberculous lesions, 225
——, ——, —— childhood, 10
——, ——, —— infants, Contagiousness of, 215
——, ——, —— ——, Open, 178
——, ——, —— New York City and State, Deaths and death rates from, 4, 82
——, ——, —— the aged, 144
——, ——, —— —— Senegalese, 45
——, ——, Influenza and, 216
——, ——, Latent, in its disguises, 55
——, ——, Lung wounds and, 49
——, ——, Misleading beliefs regarding, 55
——, ——, moderately advanced, The care of, 37
——, ——, Morphology of the sputum in, 20
——, ——, mortality of large U. S. cities, 134
——, ——, —— since 1914, 132
——, ——, mycosis and spirochetosis, 160
——, ——, Nontuberculous complications of, 26
——, ——, pathology and treatment of empyema complicating, The, 192
——, ——, Postural rest for, 36
——, ——, Prognosis of, 150
——, ——, —— ——, Râles in the, 241
——, ——, Pütter's system of caring for those with, 229
——, ——, Recent methods of treating, 228
——, ——, Silica in, 79
——, ——, Smoking in, 153
——, ——, Statistics on the prevention of, 66
——, ——, Surgery in, 201
——, ——, surgical treatment of, Results of, 39
——, Pulmonary syphilis simulating, 115
——, pulmonary, Test of cure in, 209
——, ——, The anatomic forms of, 180
——, ——, —— blood pressure in, 142
Tuberculosis, pulmonary, The phrenic sign in, 153
——, ——, —— tonsillar route of infection in, 57
——, ——, Therapeutic value of the Ponndorf tuberculin treatment in, 205
——, ——, treatment of, Artificial sunlight, 231
——, ——, —— —— local and, Combined X-ray and artificial light, 231
——, ——, —— ——, with partial antigens, 103
——, ——, Types of, under the X-rays, 68
——, ——, X-ray treatment of, 116
Tuberculosis, Racial differences in, 18
—— recreation centres, 138
——, Relation of contact to development of, 8
——, Relative value of laboratory and clinical methods in, 218
——, Renal, 113
——, ——, and impacted pelvic calculus, 158
——, ——, Development of, 190
——, ——, Differential diagnosis of, 159
——, ——, Medical management of, 159
——, ——, Pathology of, 159
——, ——, Roentgen diagnosis of, 159
——, ——, Surgical treatment of, 159
——, ——, The laboratory diagnosis of, 190
——, Resistance to, 100
——, retrospect and prospect, 131
—— sanatoria, Building, 136
—— ——, Standard, 137
—— schemes, Why, fail, 2
—— service, Public, 74
——, Skin, in cattle, 170
——, Social prophylaxis against, 84
——, Some questions relating to, 131
——, Specific prophylaxis of, 241
——, Squint, lefthandedness and, 67
——, Stability reaction of blood in, 154
—— statistics, New York City, May–July, 1921, 213
——, struggle against, in Belgium, The, 239
——, —— ——, —— Chile, The, 240
——, —— ——, —— Holland, The, 239
——, —— ——, —— Japan, The, 241
——, —— ——, —— Poland, The, 240
——, —— ——, —— Sweden, The, 240
——, Studies in immune biology, disposition and constitution and, 117

Tuberculosis, Sulphur dioxide and, 208
Tuberculosis, Surgical, 28, 63, 226
——, ——, Complement fixation in, 154
——, ——, Diagnostic value of tuberculin in, 110
——, ——, Heliotherapy in, 35, 230
——, ——, —— of, and necessity of community sanatoria for such patients, 230
——, ——, in children, Hospital school for, 76
——, ——, —— ——, The treatment of, by venous hyperemia, 148
——, ——, —— infants, 88
——, ——, Influence of trauma on, 86
——, ——, Institutional treatment in, 164
——, ——, lupus vulgaris and, Results of treatment of, with artificial chemical light baths, 197
——, ——, Mixed infection in, 71
——, ——, Nonoperative treatment of, 168
——, ——, operative treatment of, The, 120
——, ——, Sanatoria for, 38
——, ——, —— ——, Necessity of foundation of, 105
——, ——, Tebelon in the treatment of, 207
——, ——, The treatment of, with X-ray 35
——, ——, —— urochromogen reaction in, 92
——, ——, thoracic, Two cases of, 121
——, ——, treated by the Friedmann vaccine, 205
——, —— treatment of, 104, 199, 200
——, —— —— ——, by the practitioner, 202
——, ——, —— ——, with turtle bacilli, 202
Tuberculosis, Syphilis and, 162
——, The conquest of, 45
——, —— diagnosis of, 139
——, —— heart and, 126
——, —— influence of smoke abatement upon, 65
——, —— leucocytes during the treatment of, with the Deycke-Much partial antigens, 206
——, —— Martinotti vaccine for, 31
——, —— nose as a defense against, 216
——, —— prognostic significance of the cutaneous reaction to old tuberculin and to partial antigens in, 209
——, —— real problem of, 174
——, Trauma and, 106
Tuberculosis, Treatment of, 163
——, —— —— Friedmann's, 233
——, —— ——, at the seashore, 78
——, —— —— Chaulmoogra oil in the,
——, —— ——, Light, 229
——, —— ——, ——, Theory and practice of, 230
——, —— ——, with partial antigens (Deycke-Much), 206
——, —— ——, —— sodium morrhuate, 80
Tuberculosis, tubal, Genesis of, 112
——, Tumor-like, of the heart, 62
——, urological, Case of, 113
——, Vaccination against, 165
——, Vaccine therapy of, 30
——, —— treatment of, 74
—— ——, Tubar, another, 207
——, Vaginal, 112
——, What the nurse should know about, 106
——, Which lung is most frequently involved in, 185
——, X-ray treatment of, 199
Tuberculosis-free accredited herds, 15
Tuberculous adenitis, Radium treatment of, 35
—— ——, Treatment of, 166
—— ——, —— ——, by roentgen rays and radium, 166
—— animals, Nitrous oxide-oxygen anesthesia in, 86
—— apex, Tenderness over, 57
—— arthritis and osteomyelitis, treatment of, X-rays in the, 233
—— bone and joint disease, 96
—— children sleep in parks, 148
—— ——, The physical development of, 147
—— cripples, Care of, 203
—— disease in life insurance selection, 134
—— —— of the hip joint, 96
—— edematous infiltration of the lung, 158
——, Fatigue as a test of the, 140
——, Gastric ulcer in the, 110
—— hemarthrosis of the knee, 69
—— hemorrhages, 189
—— hilum pneumonia in children, Chronic, 90
—— hip disease and its simulants, 127
—— infants and children, Epituberculous infiltration of the lungs, in, 146
—— infection and delayed healing, 163

Tuberculous infection, childhood, Relation of, to adult tuberculosis, 176
—— —— in advanced childhood, Danger of, 215
—— —— of a child, 215
—— —— —— children, Agglutination reaction in, 222
—— infections, experimental, Leucocytic response in, 73
—— joints, early, Differential diagnosis of, 21, 191
—— ——, Surgery of, contrasted with heliotherapy, 230
—— kidney, Rationale of diagnostic catheterization in, 190
—— laryngitis, X-ray treatment of, 102
—— lesion, Tenderness in muscles as early sign of, beneath, 25
—— lesions, pulmonary, A prognostic classification of, 209
—— ——, surgical, Pulmonary tuberculosis in cases of, 225
—— lymph nodes, X-ray treatment of, 74, 199
—— lymphadenitis, X-ray treatment of, 78
—— lymphangitis, 70
Tuberculous meningitis, 30, 71
—— —— and hereditary syphilis, 227
—— ——, Association of, with meningococci and parameningococci, 97
—— ——, Curability of, 80
—— ——, diagnosis of, Chemical examination of the cerebrospinal fluid in the, 61
—— —— in adult consumptives, 111
—— —— —— adults, 160
—— —— —— ——, Symptoms of, 114
—— mesenteric nodes, A case of, 127
—— mothers, Infants of, 10
—— myocarditis, 27
—— parents, The fate of children of, during the war, 215
—— patients, Alpine health resorts for, 229
—— ——, Tubercle bacilli in the blood of, 93
—— pericarditis, chronic, Pleuropulmonary tuberculosis and, 95
—— peritonitis, 110
—— ——, Treatment of, 231
——, Psychology of the, 100
—— rabbits, The absorption of acacia from the pleural cavity of normal and, 49
—— salpingitis, 70
——, Significance of slight fever in the, 59
Tuberculous soldiers, Sanatorium care of, 152
—— sputum, Bacterial flora of, 20
—— ——, Disinfection of, 155
—— toxins as causes of disease, 216
Tumor-like tuberculosis of the heart, 62
Tumors, lung, Diagnosis of, 227
Turtle and other acid-fast bacilli, Antigenic property of low virulent tubercle bacilli, 155
—— bacilli, Treatment of surgical tuberculosis with, 202
Tweddell, F. Sulphur dioxide and tuberculosis, 208
Types of pulmonary tuberculosis under the X-rays, 68
—— —— tubercle bacillus, Significance of, 143

Ujihara, S. The struggle against tuberculosis in Japan, 241
Ulcer, Gastric, in the tuberculous, 110
Ultraviolet light, Exposure of the cornea to, 198
—— ——, The action of, on the inner organs of eosin sensitized mice, 198
—— —— treatment of heart and vascular diseases, 198
—— radiation, Effect of, on vitamines, 102
—— ray treatment of rickets, 232
—— rays in the preparation of vaccines, The use of, 122
—— ——, Radiating the larynx with, 34
—— ——, Sterilization of the throats of diphtheria carriers with, 198
—— ——, The action of, on the cell, 122
United States, Mortality and morbidity from tuberculosis in the, 171
—— ——, Prevention of tuberculosis in the, 172
—— —— registration area, 1919, Causes of death in, 4
Universal light baths in ophthalmology, 122
Unusual case of tuberculosis in an infant, An, 178
—— cases of abdominal tuberculosis, 158
Unverricht, W. Tuberculous infection of a child, 215
Upper air passages, Pseudotuberculosis due to disease of, 156
Urbain, A., and Fried, B. Specificity of the Besredka antigen, 143

Urine, intracutaneous injection of patient's own, Diagnostic value of, 60
Urochromogen reaction in surgical tuberculosis, The, 92
Urological tuberculosis, Case of, 113
U. S. cities, Pulmonary tuberculosis mortality of, 134

Vaccination against tuberculosis, 165
—— of cattle, 179
Vaccine, Friedmann, Surgical tuberculosis treated by the, 205
——, ——, The, 233
——, Friedmann's, Antigenic action of, 241
——, ——, Cold-blooded tubercle bacilli and, 204
——, ——, in pulmonary tuberculosis, 234
——, ——, The specificity of, 204
——, ——, Treatment of lupus vulgaris with, 205
——, Martinotti, for tuberculosis, The, 31
—— therapy of tuberculosis, 30
—— treatment of tuberculosis, 74
——, Tuberculosis immunizing, 119
——, tuberculosis, Tubar, another, 207
Vaccines, ultraviolet rays in the preparation of, The use of, 122
Vaginal tuberculosis, 112
—— wall, anterior, Tuberculosis of the, 160
Van Voornveld, H. J. A. Significance of slight fever in the tuberculous, 59
Varrier-Jones, P. C., and Woodhead, G. S. Dispensary, sanatorium and the tuberculosis officer, 43
—— ——. ——., —— ——, ——. ——. Occupations for consumptives, 77
——, ——. ——., —— ——, ——. ——. Quasi-continuous temperature records in early diagnosis, 91
Vascular diseases, heart and, Ultraviolet light treatment of, 198
Vein, Sodium silicate by the, 80
Venereal diseases, The light treatment of, 197
Venous hyperemia, The treatment of surgical tuberculosis in children by, 148
Vienna, the first census in, Statistics on infant and tuberculosis mortality during the eighteenth century, 43
——, Tuberculosis mortality in, before and after the war, 81
Vincenzo, F. What the war has taught with regard to predisposition to tuberculosis, 47
de Vine, J. F. Coöperative eradication campaign and the practitioner, 15
Vis, W. R. Apex, hilum and lower lobe lesions of tuberculosis in childhood, 89
Visible light rays, Action of the, on the body temperature, 103
Vital statistics for the year 1920 in New York City, 7
Vitamines, Effect of ultraviolet radiation on, 102
Von Ruck, K., and Flack, R. E. Vaccination against tuberculosis, 165

Wales, tuberculosis in, Campaign against, 3
Wallace, A. Nerve block in laryngeal tuberculosis, 126
War and social prophylaxis, 2
—— —— tuberculosis among the children of Munich, The, 178
——, The fate of children of tuberculous parents during the, 215
——, Tuberculosis mortality in Vienna before and after the, 81
——, What the, has taught with regard to predisposition to tuberculosis, 47
Ward, C. B., and Tanner, F. W. Bacteria on coins, 217
Ward, E. Infectivity of tuberculosis, 48
Wasson, W. W. Intrathoracic movements, 141
Watkins, W. W. Pulmonary syphilis, 115
Watts, H. F. R. Rôle of immunity in tuberculosis, 118
Webb, G. B., and Gilbert, G. B. Bronchiectasis and accessory sinus disease, 130
——, ——. ——., Forster, A. M., and Gilbert, G. B. Postural rest for pulmonary tuberculosis, 36
Weight, Climate and, in tuberculosis, 193
—— prediction, 140
Weil, M. P. Ambard's coefficient in pulmonary tuberculosis, 186
Weinberg, J. The influence of X-rays on the development of tuberculosis, 122
Weller, C. V. Tuberculosis of tonsils, 125
Westergren, A. Stability reaction of blood in tuberculosis, 154

Which lung is most frequently involved in tuberculosis, 185
Whittemore, W., and Chaffin, G. L. Extrapleural thoracotomy, 203
Wildbolz auto-urine reaction, Diagnostic value of the, 221
——, The determination of activity according to, 25
Wilkins, W. A. Diagnostic value of X-ray examination, 68
Wilkinson, W. X-ray treatment of pulmonary tuberculosis, 116
Williams, W. Glandular and pulmonary tuberculosis, 69
Winiwarter, J. Treatment of tuberculosis of the kidney, 105
Winslow, C.-E. A., and Greenburg, L. Control of the factory dust problem, 17
——, ——, ——., —— ——, ——. Industrial tuberculosis and the factory dust problem, 47
Wirtz, T. Tuberculosis of Meckel's diverticulum, 62
Wolbach, S. B., and Lovett, R. W. Roentgenography of obscure bone lesions, 61
Wollstein, M., and Spence, R. C. Tuberculosis in infants and young children, 88
Women, Tuberculosis of the kidney in, 70
Woodhead, G. S., and Varrier-Jones, P. C. Dispensary, sanatorium and the tuberculosis officer, 43
——, ——. ——., —— ——, ——. ——. Occupations for consumptives, 77
——, ——. ——., —— ——, ——. ——. Quasi-continuous temperature records in early diagnosis, 91
Woolley, J. S. A simple artificial pneumothorax apparatus, 75
Work of an after-care committee, 175
World, tuberculosis throughout the, Diffusion of, 211
Wounds, Chest, and pulmonary tuberculosis, 49
——, Lung, and pulmonary tuberculosis, 49
Wright, W. D. Skin tuberculosis in cattle, 170
Wrist, tuberculosis of the, Operation for, 32
Wynn, F. B. Medical management of renal tuberculosis, 159

X-ray and artificial light, Combined, treatment of local and pulmonary tuberculosis, 231
—— diagnosis in phthisis, 23
—— examination, Diagnostic value of, 68
—— —— of the chest, 22, 187
—— in diagnosis, 92
——, The treatment of surgical tuberculosis with, 35
—— treatment in children, The results of, 148
—— —— of laryngeal tuberculosis, 122
—— —— —— peritoneal and genital tuberculosis, 123
—— —— —— —— tuberculosis, 123
—— —— —— pulmonary and intestinal tuberculosis, 123
—— —— —— —— tuberculosis, 116
—— —— —— tuberculosis, 199
—— —— —— tuberculous laryngitis, 102
—— —— —— —— lymph nodes, 74, 199
—— —— —— —— lymphadenitis, 78
X-rays in the treatment of tuberculous arthritis and osteomyelitis, 233
——, small doses of, Action of, 233
——, The influence of, on the development of tuberculosis, 122
——, Treatment of lupus with iodine exposed to, 832
——, Types of pulmonary tuberculosis under the, 68

Young children, infants and, Tuberculosis in, 88

Zeisler, E. P. Tuberculosis of the lip, 44
Zigler, M. Case of urological tuberculosis, 113
Zilva, S. Effect of ultraviolet radiation on vitamines, 102

THE PALMER TUBERCULOSIS SANATORIA

SPRINGFIELD, ILLINOIS

ESTABLISHED 1913

THE SPRINGFIELD OPEN AIR COLONY, A Sanatorium and School for Early Tuberculosis.
THE HOMESTEAD, A Hospital for Active and Surgical Tuberculosis.

One of the Few American Sanatoria having a Sanatorium for Sanatorium Cases and Hospital for Active Cases on Entirely Separate Grounds, but under one Management and one Medical and Nursing Staff.

An Institution in which Happiness is Seriously Regarded as an Essential Part of Treatment.

Under the Personal Direction of

DR. GEORGE THOMAS PALMER

SPRINGFIELD ILLINOIS

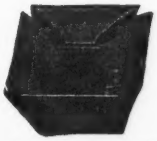
MAPLE CREST SANATORIUM East Parsonsfield, Me.

For Pulmonary and Laryngeal Tuberculosis. Altitude about 1000 feet. Modern scientific methods used. Emphasis placed on rest treatment. Tuberculin and Artificial Pneumothorax used in selected cases. Rates $25 to $30 per week. For particulars address the
Sanatorium or Dr. FRANCIS J. WELCH, 698 Congress Street, Portland, Me.

TRANSACTIONS FOR SALE AT REDUCED PRICES

The National Tuberculosis Association has a supply of its annual Transactions dating back to 1905. We offer these at the reduced price of 50¢ per copy for 1905 to 1919 and $1.50 for 1920. Address the Association, 370 Seventh Avenue, New York City.

HYGIENIC PAPER SPECIALTIES



Sputum Cup (Refill)

Sputum Cup Holder

Paper Sputum Cups and Holders
Pocket Sputum Cups—Paper Cuspidors—Paper Napkins—Paper Towels—Drinking Cups

SHEET TOWELS

Made of the strongest and purest fibres known. Superior to all other towels.

STONE & FORSYTH CO. **Boston, Mass.**

History of the National Tuberculosis Association and the Tuberculosis Movement in the U. S.

On or about April 1st, 1922, the National Tuberculosis Association will publish a History of the Tuberculosis Movement in the United States.

The History will cover the pioneer work in tuberculosis in the United States beginning with the early 19th century, the beginnings of the National Tuberculosis Association and its history up to date. The volume will also contain the biographies of the honorable vice presidents, presidents, vice presidents and principal officers, and much other valuable and useful historical data.

It will be

An Invaluable Reference Book

The history is largely the work of Dr. S. Adolphus Knopf of New York City. Doctor Knopf's work has been thoroughly approved by the Committee on History of the National Tuberculosis Association, consisting of Dr. Hermann M. Biggs, Dr. George M. Kober, Dr. Henry Barton Jacobs, Dr. Charles J. Hatfield, and Dr. Knopf. The entire work has been edited by the National Tuberculosis Association The History will make a book of about four hundred pages. It will be attractively bound in dark green cloth with gold top. The volume both in appearance and contents will be a valuable addition to any library.

The Price

In order to underwrite the publication of the book, the National Tuberculosis Association has arranged to furnish the history at an advanced subscription price of $3.50 per copy postpaid. In lots of ten or more, the advanced subscription price will be $3.00 postpaid. Copies will be furnished in heavy cartons securely wrapped for mailing. These prices apply only on orders received on or before March 1, 1922, when the book goes to press. After that date, the publishing price of the book will be $4.50 per copy postpaid.

Order from the

National Tuberculosis Association,
370 Seventh Avenue,
New York City.

CONTENTS

IN MEMORIAM. Robert Childs Paterson, 1878–1921 931

WILLIAM SNOW MILLER. Thomas Willis and his De Phthisi Pulmonari 934

HUGH M. KINGHORN. Brehmer and Dettweiler. A Review of their Methods of Treatment of Pulmonary Tuberculosis 950

W. S. DUBOFF AND CASPER MARKEL. Terminal or Cachectic Edema in the Course of Pulmonary Tuberculosis 973

DAVID A. STEWART. Some Considerations Regarding the Diagnosis of Pulmonary Tuberculosis. 981

ALLEN K. KRAUSE. The Prevention of Tuberculosis Based on the Relation of Childhood Infection to Tuberculosis in Adult Life 994

INDEX OF SUBJECTS AND AUTHORS 1001

INDEX OF ABSTRACTS OF TUBERCULOSIS 243

IMPORTANT NOTICE TO SUBSCRIBERS AND CONTRIBUTORS

THE AMERICAN REVIEW OF TUBERCULOSIS is published by the National Tuberculosis Association and issued monthly about the 20th of the month. A volume includes twelve numbers and begins with the March number.

Subscriptions should be renewed immediately upon expiration. If your subscription expires with this issue, your renewal must reach us before the 15th of next month to avoid missing the next number.

Subscriptions: The subscription price of the REVIEW is $3.00 per volume, with twenty-five cents additional for Canadian and fifty cents additional for other foreign postage, to members of the National Tuberculosis Association; and $6.00 per volume to non-members, foreign postage included. Subscriptions may be sent to Williams and Wilkins Company, Mount Royal and Guilford Avenues, Baltimore, Md., or to the National Tuberculosis Association, 370 Seventh Avenue, New York City. Checks should be made payable to Henry B. Platt, Treasurer.

Character of the Review: The REVIEW consists of two main parts, namely, (1) original articles and (2) abstracts. The original part is published monthly, its size depending upon the amount of manuscript in hand. It is expected, however, to maintain an average size of about 64 pages per number, and 750 pages per volume. Abstracts will appear monthly, bi-monthly or quarterly, as the amount of material warrants. They will be bound with the original articles and will approximate about 400 pages to the volume. Each part will be paged separately, to permit permanent separate binding upon the completion of a volume.

Supplementary Numbers: The REVIEW has made provision to publish, under its auspices and without extra charge to regular subscribers of the date of issue, a limited number of supplementary issues if the occasion should arise. Such supplements would comprise noteworthy and meritorious studies of tuberculosis of monographic character, the availability of which has been passed upon by a special committee of the Board of Editors. Monographs may be submitted by the citizens of any country, but must be written in English. They may appear in no other periodical than the REVIEW. The rights of book publication, subsequent only to appearance in the REVIEW, will vest in the author.

Manuscripts: The REVIEW invites the submission of manuscripts on any phase of tuberculosis and related subjects of interest to medical practitioners and students and workers in tuberculosis and public health

Manuscripts should be sent to the office of the Managing Editor, Dr. Allen K. Krause, Johns Hopkins Hospital, Baltimore, Md. They should be in English, typewritten on one side of the page only and with wide spacing and margins. They should be mailed flat and transmitted by first-class mail with postage for return if not available. Authors should exercise particular care in the preparation, notation and description of figures, charts and tables.

The publishers will not be responsible for manuscripts, illustrations, etc., lost in transit. In order to save expense for authors' corrections in proof, manuscript should be carefully revised by the author before submission.

Reprints: Fifty reprints with covers of articles will be furnished to authors free of charge when requested in advance. A table showing cost of additional reprints, with an order blank is submitted with proofs to the authors.

Advertising: Rates will be sent on request.

The publishers reserve the right to decline any advertising submitted and to censor all copy.

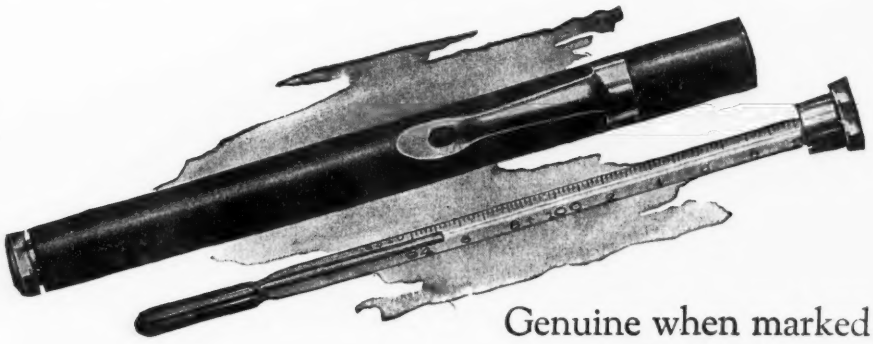
Single Copies: The price of single copies of THE AMERICAN REVIEW OF TUBERCULOSIS is fifty cents.

B-D PRODUCTS

Made for the Profession

B-D

on a CLINICAL THERMOMETER insures the best that years of conscientious effort can produce.



Genuine when marked

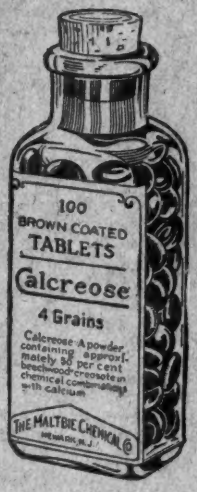
B-D

BECTON, DICKINSON & CO.

RUTHERFORD **NEW JERSEY**

Also Makers of Genuine Luer Syringes, Yale Quality Needles, Ace Bandages Asepto Syringes - Sphygmomanometers and Manometers

CALCREOSE



AS AN ADJUVANT to other remedial measures employed in the treatment of pulmonary tuberculosis, CALCREOSE (Calcium creosotate) has value because of the well known effect of creosote on the associated bronchitis.

CALCREOSE possesses all the efficacy of creosote—but it is free from the untoward effects on the stomach, such as distress, burning and nausea, even when it is administered over a long period of time and in comparatively large doses.

PATIENTS DO NOT OBJECT TO CALCREOSE. CALCREOSE LESSENS COUGH AND EXPECTORATION; IMPROVES THE APPETITE AND NUTRITION.

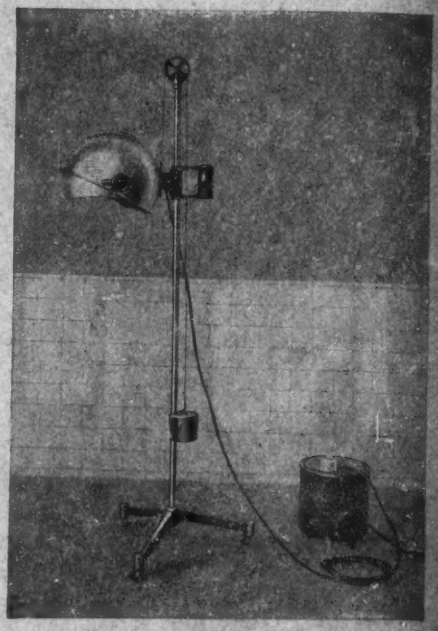
Write for samples and literature

THE MALTBIE CHEMICAL COMPANY
NEWARK, NEW JERSEY

The Alpine Sun Lamp for Treatment in Tuberculosis

This lamp is recognized by tuberculosis specialists to be a therapeutic aid of high value in treatment of many of its manifestations.

We have several treatises with concrete facts which we will be pleased to send to you upon request to Dept. "C."



THE ALPINE SUN LAMP

HANOVIA QUARTZ LIGHT RADIOMETER

The Quartz-Light Radiometer is a mechanical device for determining the proper dosage at various distances from the lamp.

Experimentations and untiring efforts have made this radiometer an apparatus whereby a dosage standard can be obtained for each particular case.

We will be pleased to mail one to you upon receipt of the following slip:

Please send to Dr. _____

one Hanovia Quartz-Light Radiometer with full instructions for using, for which I am enclosing (money order, check or cash) $7.50.

HANOVIA CHEMICAL & MFG. CO.
NEWARK, N. J.